National Safety News

AUGUST, 1981

Here's an important step in promoting safety in your plant

Almost every day, in some plant or project, a new process or operation is introduced that brings an entirely new set of safety problems, which it is some Safety Director's job to solve. It may happen to you.

Every day, in the M.S.A. Research Laboratory and plant, our people are working to *anticipate* such situations . . . and develop and produce safety equipment to *combat* them.

With the *problem* in your plant, and the *answer* in ours, it's just a matter of getting together. By phoning your nearest M.S.A. office—there's one in all principal cities—you'll find an M.S.A. Man ready and waiting to take this all-important step.

You'll find him a very helpful fellow in time of need. Because his full-time job is safety, he has an intimate knowledge of the hazards of the industries he serves. Because he constantly works with dozens of Safety Directors, he is a rich source of helpful, practical tips on how others have solved specific problems. Because he is backed by the Nation's largest Research Laboratory devoted entirely to Safety, he can bring the latest scientific findings to your door. And because he handles a line of over 2600 items, largely manufactured in M.S.A.'s own plant, he can make completely *unbiased* recommendations, and supply any requirement with an approved *and proven* piece of equipment.

Next time you have a safety problem . . . give the M.S.A. Man a chance to demonstrate his value.

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NATIONAL SAFETY NEWS

AUGUST 1951 **Vol. 64, No. 2**

THE COVER: Wearing protective equipment to guard against stray radiation, an employee emerges from the Radio Chemical Laboratory of Socony-Vacuum Oil Company's laboratory at Paulsboro, N. J. Radio-active material, introduced into the oil, permits study of the oil's flow through porous materials. (Courtesy "The Flying Red Horse.")

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ALLENTOWN, PA.

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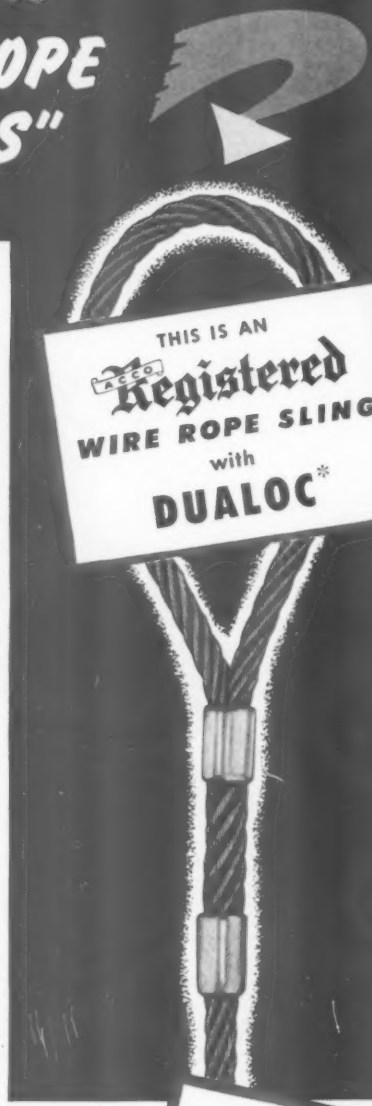

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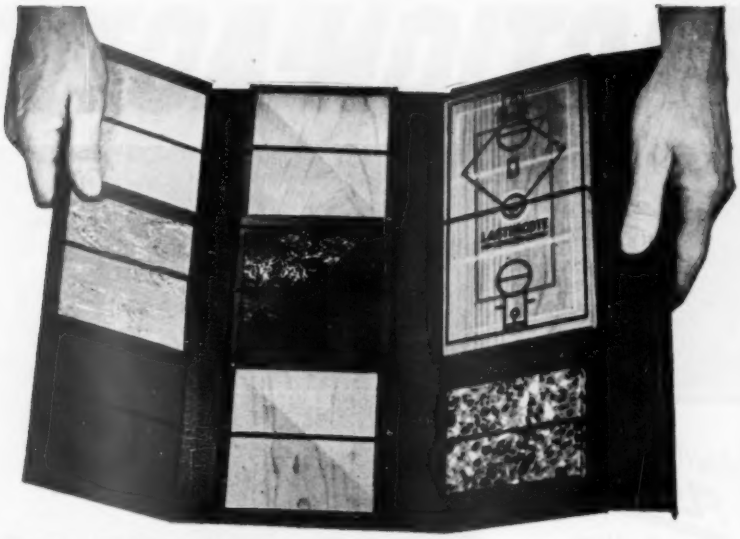

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is not a wax

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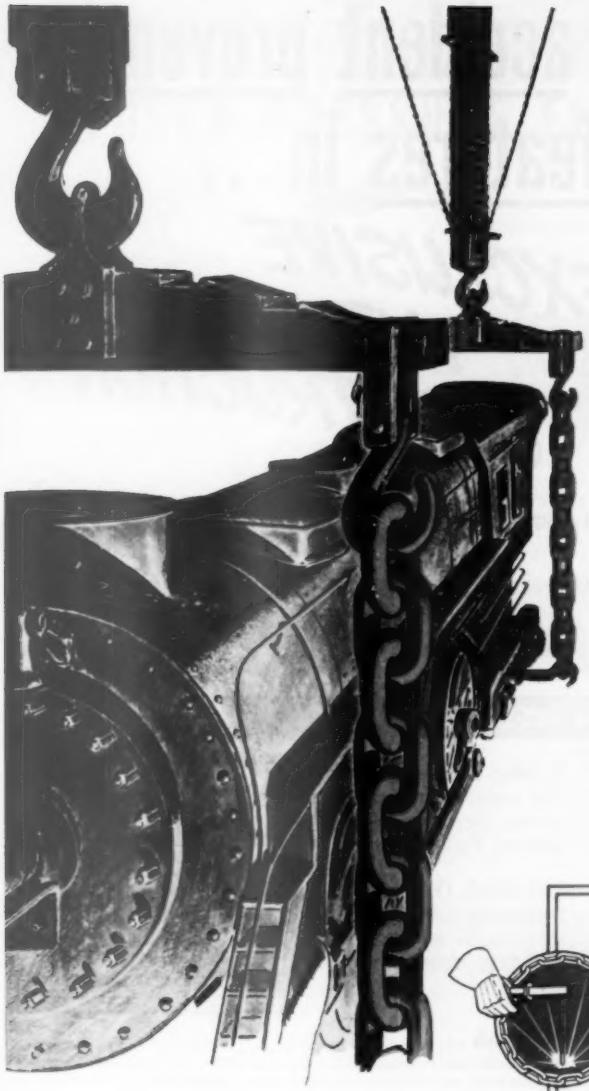

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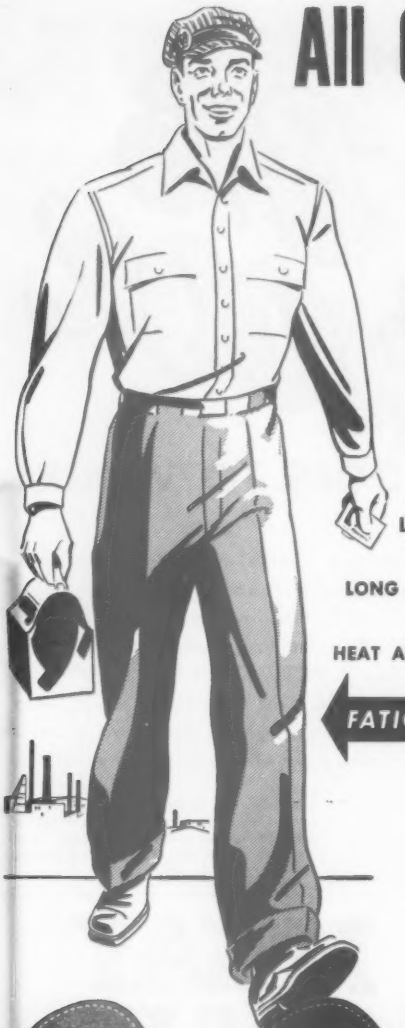

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A fire extinguisher any woman can operate easily and effectively

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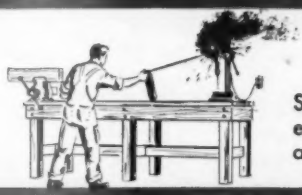

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ELMIRA NEW YORK U.S.A.

ALFCO

May 25, 1951

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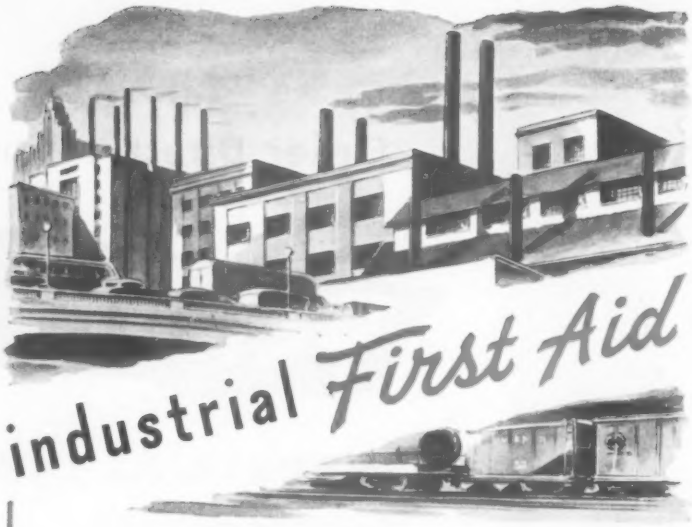

for industrial *First Aid*

MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCEIN-SODIUM)

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BALTIMORE, MARYLAND

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Inventing
Building TO MEET THE COUNTRY'S TELEPHONE NEEDS

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THE CALL FOR PROGRESS

This process of creation can never stop, for the country's telephone needs are continually changing and increasing. So we must always be thinking ahead and inventing ahead and building for the future. This is what the country looks to us to do and we are doing it. It is especially important in these days of national defense.

The pre-eminence of telephone research and manufacturing reflects a dynamic policy and point of view throughout the business. The people needed to come up with new ideas and put them into action are constantly being encouraged and given opportunity.

We shall continue to meet the challenge of the future and do our full part, always, to advance the welfare, the strength and the security of the United States of America.

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HY-TEST SAFETY SHOES

NATIONAL SAFETY NEWS

AUGUST, 1951

The Moral Challenge of the Safety Movement

By PAUL A. McGHEE

Pach Bros. photo

IN THIS ARTICLE, *Dean McGhee has presented an inspiring interpretation of the Safety Movement, one which I feel deserves thoughtful reading. It should give us all a clearer understanding of safety and a greater appreciation of our own responsibilities and opportunities.*

NED H. DEARBORN

★ ★ ★

THE leaders of the cause of Safety in this country must take time out to define the moral content of the movement and to phrase it as a challenge to the imagination and the idealism of the common man.

Until this is done, the techniques and the tools we use in the cause of safety will be blunted and fall short of effectiveness. It will be as if we were driving a car in which the spark was retarded: we can step harder on the gas, and the engine will roar, but we shall not gain a speed which truly reflects the power of our motor.

Let us examine the extent to which the idea of Safety has challenged our imaginations or has invoked our sense of moral responsibility. Here, as in so many other inquiries, it may be a good idea to begin at the beginning, with definitions.

In the *American College Dictionary* we find Safety defined as "Freedom from injury or danger; quality of insuring against hurt, injury, danger or risk." The *New English Dictionary* echoes the same negative ideas: "Exemption from hurt or injury; freedom from danger . . ."

PAUL A. MCGHEE *is Dean, Division of General Education, New York University.*

Let us face it: those who work for the cause of safety, who seek to inculcate in the minds of youth the precepts of the safety movement, are fighting odds that are bigger, perhaps, than they realize. If the child is father of the man, let us examine on what stuff he is fed when his parents or his friends or teachers prepare him for the experiences of life.

Does he grow up on the challenge of "exemption from hurt," on "insuring against hurt, injury or risk?" By no means. Were you inspired by such ideas when you were young? Is your son anxious to "insure himself against danger or risk?" Do you really want him to grow up in such a climate of feeling?

There still remains smoldering in the hearts and minds of most grownups today, and there burns fiercely in the spirits of our sons and daughters, an urge to risk, to face up to danger, to dare, to live, at least to some extent, dangerously. It is logical that we as adults should still feel this desire to live dangerously, however much it may have been lessened by the sobering effects of maturity, because this is the stuff on which we were fed from the time when we first listened to a story.

On this we cut our first teeth when we could read a book, and our later molars too. Would Jim in Treasure Island have found himself in that apple barrel hiding from old John Silver if he had

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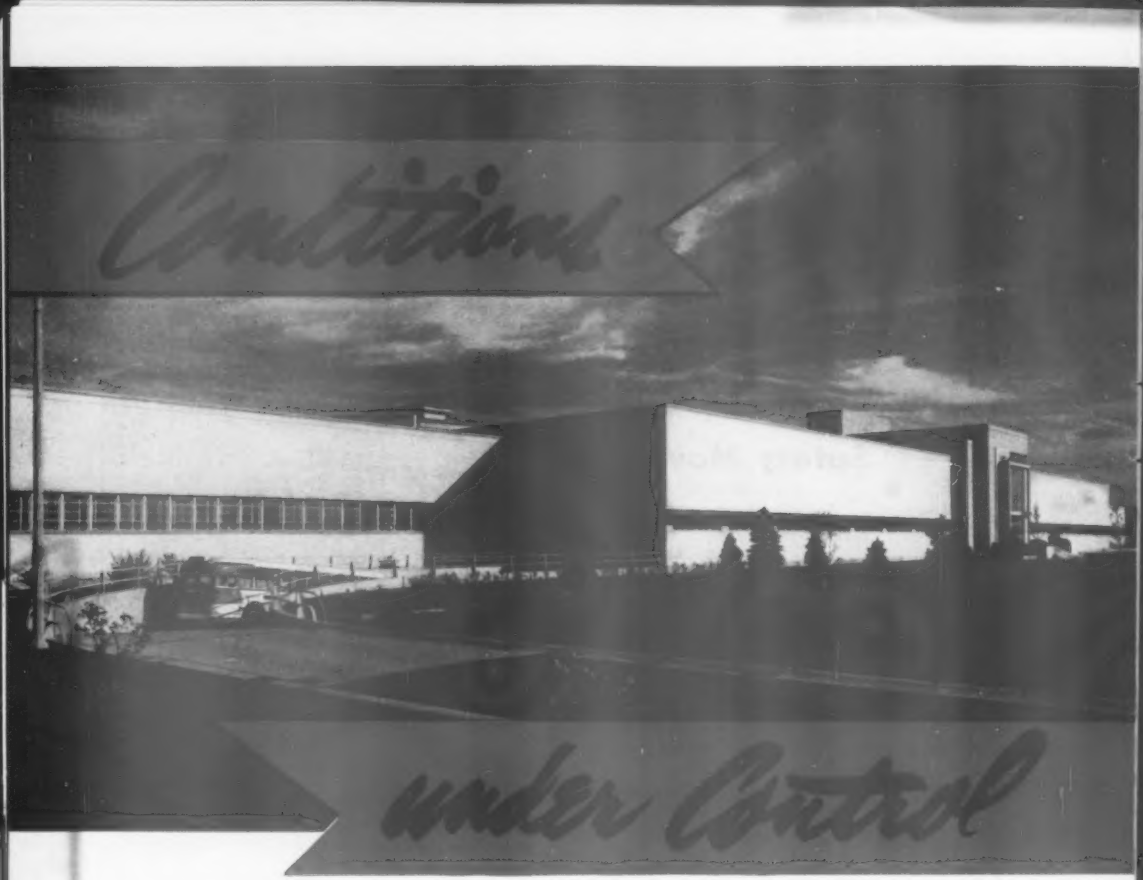
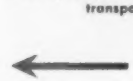


Modern pharmaceuticals must be manufactured under ideal conditions of temperature, humidity and cleanliness. These requirements also provide a pleasant and healthful working environment.

Plant offices are located in a one-story structure along the front of Upjohn Company's new Manufacturing Building. A driveway extending underneath the projecting area is used by company-operated busses which provide employee transportation to and from the plant.



TIME WAS when most of the doctor's materia medica was compounded in the back room of the drug store from a few simple, traditional substances. Even 15 years ago—a short period in the annals of pharmacy—some 90 per cent of the drugs now routinely prescribed had not been discovered. Nor was the compounding of the old-time remedies as exacting as the manufacture of complex modern pharmaceuticals.

Production of antibiotics, serums, hormones, vitamins and other pharmaceuticals calls for the closest control of temperature and humidity and the exclusion of organisms that might upset the delicate processes. These considerations, plus ideal working conditions for employees, entered into the plans for the new plant of the Upjohn Company recently completed on a 1500-acre rural sight near Kalamazoo, Mich.

The largest single construction project yet completed in this expanding field, the plant represents the results of more than five years of planning, design and construction work. The relative merits and costs of expansion of the company's downtown facilities and construction of a new plant at an outlying site were studied exhaustively. An outlying location was chosen

and in 1946 the contract for design and construction was awarded The Austin Company.

The management, engineering, and production staff at Upjohn and The Austin Company's Chicago district and headquarters staff were guided by these objectives:

1. To provide the best possible facilities for the manufacture of present and future products.

2. To insure maximum efficiency and economy consistent with quality.

3. To provide facilities and conveniences to conserve the health, time and energy of employees and to contribute to their enjoyment of their work.

The new plant has been designed to cut down the time lag between laboratory and sick bed. In the case of penicillin, for example, three years elapsed between the time mass production was first attempted and finally achieved. Progress in medicine will continue, accelerated by military needs, and provision has been made for space and facilities to switch to large scale production of drugs still to be discovered and developed.

The plant structure facilitates continuous flow operation. Raw materials are brought on a railroad spur track to one side of the building, processed as they move through the huge central manufacturing area, and then stock-piled and shipped out on another spur track from a warehouse area on the far side.

Except for antibiotics, which are produced in a multi-story structure designed to accommodate complex processing equipment, and an adrenal cortex production unit which has been isolated in a small explosion-proof structure to cope with difficult operating conditions, all manufacturing activities and storage are now housed on one floor in a building 870 by 1125 feet.

Consolidated under one roof are operations which formerly occupied 30 buildings and 19 acres of floor space in downtown Kalamazoo. Remaining at the downtown site are the administrative offices and the research department. Here are employed 375 people in 10 departments ranging from physics to endocrinology.

Production operations are concentrated in a 360-foot wide air-conditioned section through the center of the building, where the use of 80-foot roof trusses with 40-foot carrying trusses have made it possible to provide large areas of unobstructed floor space. Clearance of 14 feet has been maintained in all operating departments. Acoustical tile and continuous troffer lighting have been incorporated in a suspended ceiling of new and revolutionary design.

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Integrated lighting system installed in "troffer beams" of heavy sheet steel extending from truss to truss and fastened to bottom chords. Troffer beams also support air-conditioning ducts, air diffusers, sprinkler pipe, etc.

Installation of piping and other services to operate process equipment was facilitated by a basement underneath production area. Steam and condensate lines, air, gas, vacuum, hot and cold water, and sprinkler lines are all included.

This maze of special air-handling ducts in this tablet and pill coating room is typical of the installations in six rooms isolated from each other by movable partitions.

"-OUR SAFETY PROGRAM BEGINS HERE"
ASK THE VICTIM'S FAMILY!
HOW MUCH DOES AN ACCIDENT REALLY COST, BUD?
SAFETY OFFICE
ACCIDENT VICTIM
READ THE LAST LINE FIRST.
FAILURE TO PROTECT YOUR EYES BY WEARING SAFETY GLASSES ON DANGEROUS JOBS MAY MAKE YOU BLIND FOR LIFE!
SAFETY NEWS BECOMES MORE IMPORTANT THAN EVER....!

FRONT LINE INDOCTRINATION

By JIM BARSTOW

For safety cartoons with a wallop!

MY BUSINESS is drawing cartoons for General Electric employee newspapers. Safety cartoons—sometimes funny, sometimes deadly serious. It's no easy job to go on week after week, turning out picture-sermons, with but one purpose in mind—to convince my readers (over 200,000 of them) of the very important fact that "Death is *so* important," and that only constant vigilance may keep them from meeting it before their time.

If I ever entertained the idea that it wasn't worth the effort, or that my pictorial brainstorms could just as well be left unpublished, I have had these ideas knocked into a cocked hat.

I have just spent two exciting days at one of our general safety committee meetings. What an experience! If every one of our thousands of employees could sit in on one of these sessions and just listen, General Electric could stop worrying about the safety of its employees.

I not only built up my knowledge of safety, but raised my blood pressure.

Twelve safety supervisors, under the chairmanship of Fred Clarke, unfolded the accident story with all the interesting and unpleasant details, as casually as the information desk at Grand Central station tells you what time the next train leaves.

These men pull no punches. Sometimes the discussion waxed white hot. Across the conference table, this group of professional life-savers discussed every form of industrial accident, fatal or otherwise.

Putting human lives against dollars, these boys indulged in cold analysis of every accident, putting the blame where it belonged, naming names, and suggesting ways and means of calling a halt to this useless waste of life and manpower in the struggle for a stronger

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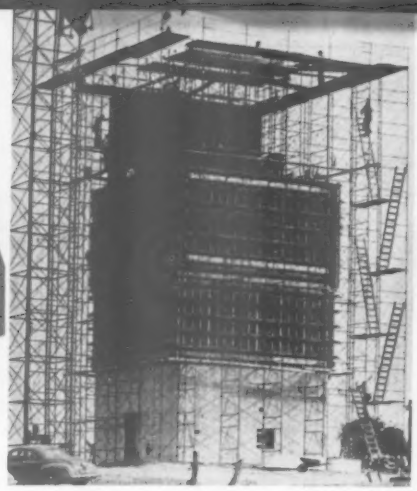
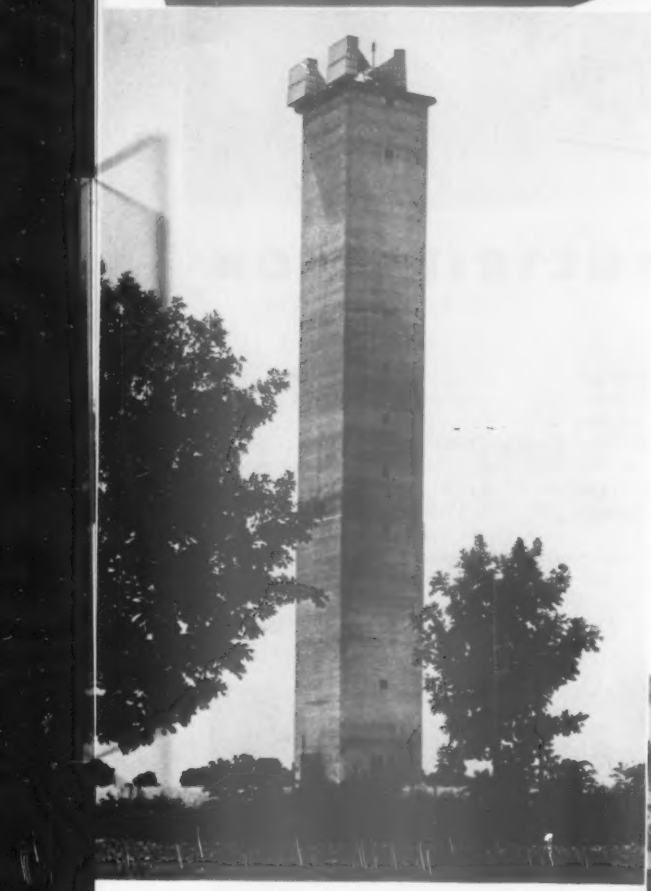
Safety ON THE HILLTOPS



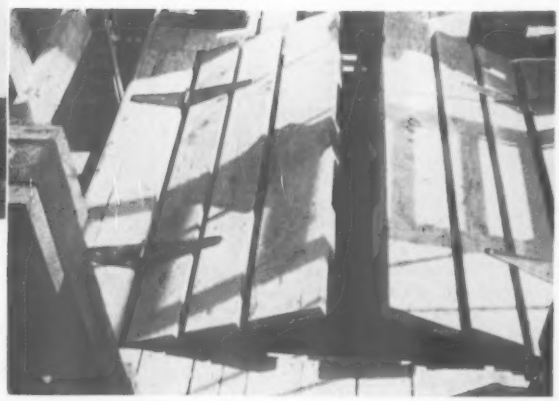
Early stage of construction by fixed-form method showing men on ladders.

By EARLE S. HANNAFORD

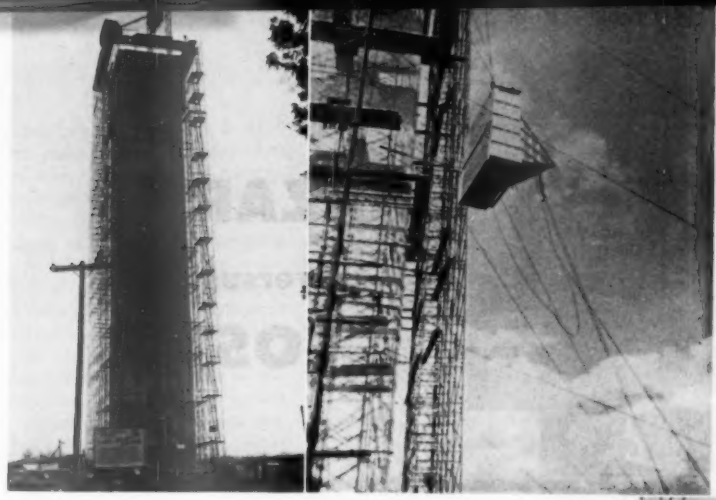
THE Bell System's new route for speeding long distance telephone calls and television programs by means of a series of relay stations across the countryside is more than an outstanding communications development — it is a remarkable example of a safety program in action. Both steel and concrete towers make up this network, which will stretch from coast to coast by late summer, but construction of the concrete tow-



One of the stations on the Bell System's radio relay route between New York and Chicago. These concrete towers, ranging in height from 60 to 190 feet, are located on high ground 30 miles apart.



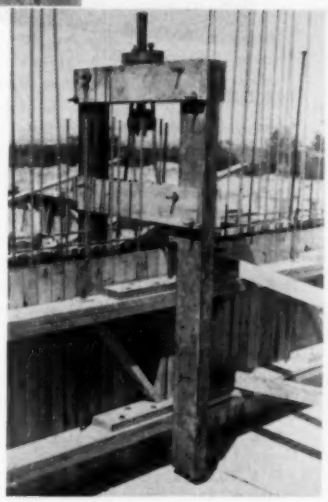
Trapdoor opening in platform for concrete lift.



Left: Structure nearing completion. Note staggered ladders and rest platforms.

Right: Antenna on its way to the top of the tower.

Below: Section of sliding form, showing mounting of screw jack.



ers offered particularly varied and interesting problems for the safety man.

The electrical transmission signal used over this route is composed of tiny impulses, called microwaves, which travel from point to point in an unobstructed line-of-sight path. This requires concrete relay stations, about 30 miles apart, ranging in height from 60 to 190 feet. The building of towers of such height offered the Bell System and its contractors a host of potential hazards to be avoided by careful advance planning and skill on the job. Further, some of the operations were unprecedented, and unforeseen difficulties had to be overcome.

Determining the location of the relay stations was the responsibility of engineers in the Long Lines Plant Department. Inspecting the sites, surveying the requirements and making the necessary test measurements thus became the first phase of the job for which safety planning was apparent.

The survey crews had to travel widely over the countryside—by car as far as possible and then by foot over trails or through unbroken wilderness to the tops of hills, lugging the necessary testing equipment. To assure that each member of the crews was physically capable of this unaccustomed activity, each was given a thorough physical examination. Further preparation for the job, in addition to technical training, included the Standard Red Cross first aid Course, with special attention to prevention and treatment of snake bites and plant poisoning, and training in safe driving practices and the operation of motor vehicles.

While the siting crews were still at work in the field, planning for the actual construction was also proceeding. The actual building was to be done by contractors under the supervision of Long Lines engineers and subject to acceptance by Long Lines inspectors. Nowhere in Long Lines, however, was there anywhere near the number of people required to supervise and inspect the number of jobs that would be going on in widely scattered areas. Field engineers and inspectors had to be qualified to supplement the nucleus of building engineers who would provide the necessary coordination and supervision.

To insure uniform practices and results at all locations, and the inclusion of adequate material on safety, the Long Lines Plant Department organized and conducted a training course in New York which was attended by key men from all areas. These men, in turn, when they returned to their home offices, conducted identical courses for the field engineers and inspectors who were to handle the jobs in their areas. The course was prepared in cooperation with the Portland Cement Association and incorporated material provided by the National Safety Council, and the American Standard Safety Code for Building Construction.

Included in the intensive 40-hour schedule were discussions of

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EARLE S. HANNAFORD *is Supervisor of Employment and Training, Long Lines Department, American Telephone and Telegraph Company, New York, and General Chairman, Public Utilities Section, National Safety Council.*

the industrial safety panel

HAZARDS versus COST

THE QUESTION:

What can the safety engineer do about guarding hundreds of pieces of old equipment, at great expense, when the frequency and severity of injuries involving this equipment has been comparatively insignificant?

THE PARTICIPANTS:

GLENN D. CROSS, safety director, Firestone Tire & Rubber Co., Akron, Ohio.

R. W. CROUCHER, safety officer, Minnesota and Ontario Paper Co., International Falls, Minn.

JACK DUNMAN, safety director, The Mengel Co., Louisville, Ky.

H. V. GARDNER, safety director, Glass Container Div., Owens-Illinois Glass Co., Toledo, Ohio.

D. E. MUMFORD, superintendent of safety, New York Central System, New York.

J. HOWARD MYERS, director, safety and fire prevention, Atlantic Refining Co., Philadelphia, Pa.

HERSCHEL L. SMITH, safety engineer, General Electric Co., Fort Wayne, Ind.

WILLIAM S. SMITH, safety director, Ford Motor Co., Dearborn, Mich.

GEORGE H. STEEL, safety director, Ralston Purina Co., St. Louis, Mo.

E. CLARK WOODWARD, safety director, A. O. Smith Corp., Milwaukee, Wis.

CHARLES R. ZESKEY, JR., chief engineer, T. H. Mastin & Co., Kansas City, Mo.

SUMMARY:

WHEN this month's panel participants were asked for an opinion on the above subject, they were told of a case in point — a company's problem of guarding thousands of old motors because workers might slide their fingers into the ventilation openings, where they might be nipped by the fan. Over a 24-year period, three employees each lost the tip of a finger and total compensation amounted to less than $1,000.

Four of the eleven participants believe in taking no chances by leaving any mechanical hazard unguarded, while the other seven counsel a "practical" approach through education, warning signs and the like, whenever the cost of guarding is judged to be prohibitive.

Of the latter group, one panel member thought the question trivial, commenting in his covering letter: "I'd like to say—'Forget the damned things and get to work on problems that are costing your company money'." Another said: "You really dig deep for panel questions and answers." Perhaps he thinks the staff is "reaching too far down in the barrel."

The middle ground suggested is to begin on the worst hazards and guard the machines progressively, if they cannot be replaced with safe designs. In this way management would not be jolted by a staggering request for appropriations.

* * *

MR. CROSS:

The problem of getting old equipment guarded, particularly if no serious accidents have occurred on it, is a difficult one to solve. A safety engineer can't go to his management and ask that such equipment be guarded immediately after it has operated for some time with no bad accident experience.

We encountered this condition some time ago in one of our textile mills. In the rubber business, we have always made it a policy to enclose all belts, pulleys, gears, chains, sprocket wheels, etc., no

THE INDUSTRIAL SAFETY PANEL is an informed group of safety workers representing various branches of industry. Each month part of the Panel membership answers questions relating to accident prevention principles and methods.

The purpose of the Panel is primarily to obtain the personal views of the members. Statements presented here may or may not be expressions of company policy.

The Panel is conducted by mail and participants have no opportunity to compare notes or sharpen and define points of disagreement.

matter where they are located. This practice was not followed at that time in the textile industry, particularly in the older mills.

Although we would have had a difficult problem to sell a program of guarding all the exposed transmission equipment immediately, we were able to set up a program whereby so much equipment would be guarded each year. We started with the worst hazards and eliminated them first and then proceeded to handle the less serious locations. We have now nearly completed our guarding program.

I feel that this approach is workable and although it takes time, the same end result is obtained.

Although it is not a good practice to wait until after an accident has occurred to guard equipment, it does seem that it is easier to sell a big guarding program at that particular time. This was true in the case cited above.

MR. CROUCHER:

The kind of equipment would make all the difference in the world. If it were couplings, spur gears, shaft ends, in-running nips, etc., guarding should be carried out as rapidly as possible. In fact, the equipment should have been guarded before it was put in operation, and management should view the expense necessary to do it now as a penalty for past neglect.

Merely because injuries caused by or involving such unguarded equipment have been few does not lessen the potential hazard.

The thousands of old motors mentioned constitute a different situation. The moving parts causing the three injuries are well guarded by the housing and it requires a more definite act by the employee to get hurt than on the other kinds of equipment mentioned. The men lost their finger tips by passing their hands over the housing to no gainful purpose. You don't find men in their right senses caressing a pair of spur gears or patting a belt at its in-running nip. The chances for mutilation are far greater.

If there were a chance of losing a hand or arm in contact with the ventilating fan in a motor, probably the opening should be guarded by mesh wire. But in the instance under discussion, that would be pretty far fetched, and preventive measures would seem to consist of education by supervisors.

MR. DUNMAN:

This is a problem that has faced the safety engineer for years, and a problem that has caused a great many safety engineers to look very foolish. In one case I know, an engineer lost his position on account of taking the stand that every machine must be guarded at once.

We have exactly the same type motors on some of our old equipment, and I know that it would be impossible to get these guarded satisfactorily without an outlay of money; and even though, in the Utopia of Accident Prevention, money is not supposed to be a consideration, we can't afford to kid ourselves into thinking that our tear-jerking, emotional reports will gather thousands of dollars for this type work.

We can do something about this hazard. If the safety engineer does a good job, he will sell the supervisor on the necessity of doing a good training job and all people who come into contact with this type of machinery will be cautioned about the hazard involved, just as he should be cautioned about any hazard in the plant.

Another remedy that can be used effectively, and without too much cost, is a stenciled warning on the machine.

For my money, I wouldn't trade good honest training in accident prevention for all the guards that could be manufactured.

MR. GARDNER:

few injuries over, say, a 25-year period and thus some managements might be reluctant to spend the money for adequate guarding.

In many plants there are only a

The best argument along this line is that in order to show its sincerity in accident prevention, the company must take care of every possible mechanical hazard in the plant. We are all aware that mechanical hazards cause only around 12 per cent of the lost-time accidents in the plant and that the other 88 per cent are due to unsafe practices by people. However, management must put forth every effort to take care of the 12 per cent of mechanical hazards in order to prove that they are behind the safety program to the fullest extent.

Then, and only then, can management start out on a successful safety promotion and education campaign to get the people to use safe working habits. Top supervision must show their people that they are honestly interested in the elimination of injuries.

While it is true that perhaps only a few accidents could happen on an unguarded piece of old machinery, every accident is one too many, and even though the cost is small, it certainly does a lot of harm not only to injure the person involved but also to lower the morale of all the rest of the people in the plant. Every accident, no matter how small, should be prevented if it is humanly possible to do so.

Since antiquated machinery often slows down production anyway, it is all the more reason that it should be adequately guarded so as to take away any fear that an operator might have toward his machine or work area. Best

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Help for Small Business

New program to aid accident prevention in neglected field

Following the announcement of the grant to aid small business, at the June meeting of the Industrial Conference, W. Dean Keefer second vice-president of Lumberman's Mutual Casualty Company, and Charles Alexander, manager of the Industrial Department of the National Safety Council, discuss the new program.

MUCH has been said and written about the problem of accident losses in smaller business —about the fact that their losses are more serious than most people realize and about small businesses' lack of awareness of these losses. A definite step to attack this long-standing problem can now be announced.

Ned H. Dearborn, Council President, named A. M. Baltzer of the Industrial Department staff to direct the Council's new Small Business Program on a full-time basis effective July 15, 1951. This action was stimulated by a grant of $12,500 from the National Association of Mutual Casualty Companies to start the campaign. The grant was announced by W. Dean Keefer, chairman of the Engineering Committee of the National Association of Mutual Casualty Companies at the June 18 meeting of the Industrial Conference in Detroit and it was unanimously accepted by the Industrial Conference and by Charles F. Alexander, manager of the Industrial Department, on behalf of the National Safety Council. Mr. Keefer urged the Conference to call the attention of their industry associations to the excellent safety work now being done by such associations as the Portland Cement Association, U. S. Brewers' Foundation, and the Associated General Contractors.

The new program will be under the supervision of the manager of the Industrial Department but it will be supported by the Small Business and Associations Committee of the Industrial Conference headed by H. F. Reinhard of the International Acetylene Association. It is expected that this Committee will be reorganized so as to include representatives from the mutual and stock casualty insurance associations, trade associations, state industrial commissions and small business. Mr. Baltzer plans to work closely with this Committee, coordinating the promotion and distribution facilities of their groups with those of the Council. He is prepared to assist associations in organizing safety programs and will provide consultation service and publicity material upon request.

The principal objective will be to interest and reach companies employing less than 100 employees, although it is recognized that the program will be flexible enough to fit the hazards of different industries. The program will be directed to all small business, particularly manufacturing plants and trade, service, transportation and construction groups. For the present, no effort will be made to reach agricultural employees outside of food companies and other industrial members now receiving Council service. Approximately 1,200,000 disabling injuries occur in these small firms which have a frequency rate two and one-half

A. M. Baltzer, named director of Small Business and Associations Program.

times that of large companies. The impact of the tremendous cost of accidents in small business is felt by all industry, large and small, and indirectly affects the nation's economy.

The higher frequency rate in small business is probably due to one or more of the following factors:

1. An erroneous impression on the part of small business managers that accident losses are not serious due to the infrequency of serious injuries. Actually, on a truly comparative basis of man-hours, the company of 50 workers would require ten years to equal the 1,000,000 injury free man-hour records which are more or less commonplace in large companies.

2. The mistaken belief that the insurance carrier pays for accident costs. The direct cost of medical treatment and compensation have been shown to be only a fraction of the total accident loss. Moreover, the high accumulative losses are eventually reflected in increased compensation manual rates.

3. The notion that accidents cannot be prevented or that an elaborate organization and full-time staff is required. Any business which is staffed to operate efficiently can carry on a safety program commensurate with its needs.

It has been recognized for some time that the prime need is to counteract these beliefs and to reach small business with simple and inexpensive services. The basic principles of accident prevention apply to plants of all sizes but the method of application must be scaled down to help the small business owner or supervisor who has had little or no previous exposure to organized safety work.

The Council has done just that in setting up membership services for companies employing less than 100 persons. It furnishes the material on organizing a simple safety program in the form of its small plant manual, *Industrial Safety Guide*, and other items. It provides monthly material to maintain interest in the form of posters, NATIONAL SAFETY NEWS, *Industrial Supervisor*, and the sectional news letters. A special monthly letter, alternately for employees and small plant managers, is designed to hit the attitudes mentioned above and to encourage more businesses to:

1. Inquire into their own accident losses so that they understand their own problem.

2. Accept the fact that safety is management's responsibility.

3. Recognize that it is good business to prevent accidents and that it is possible to do so at a reasonable cost.

4. Acknowledge that accident prevention pays in lower operating costs and reduced insurance rates.

5. Realize that an effective safety program improves the public and employee relations.

A Group Service Membership is now available to an association with practically all of its members in the small business classification. In this way, the association pays dues and receives materials based on the aggregate number of employees in the small, non-member companies. The association then redistributes the materials, and cooperates with the Council in publicizing the program and planning an over-all campaign to reduce accidents in that industry. A slightly different arrangement has been set up whereby the American Hospital Association and the National Safety Council service approximately 800 hospitals by pooling the technical resources of the Council and the promotional and distribution facilities of the Association.

All Industrial Sections of the Council are urged to set up special association committees or to appoint one or more executive committeemen to promote safety in small business and associations. The following sections report con-

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DSS Award to USAF Air University

For an average reduction of 17.15 per cent in injury rates in 1950 as compared with 1948-49, the National Safety Council's Award of Honor for Distinguished Service to Safety to United States Air Force Air University, Maxwell Air Force Base, Alabama. The rates considered in the award were: civilian personnel injury and fatality, military personnel injury and fatality, motor vehicle accident, and accident cost per capita.

The presentation was made May 24 at Maxwell Air Force Base by Ned H. Dearborn, president of the National Safety Council. Left to right in the above illustration are: General George C. Kenny, commanding general, Air University; Mr. Dearborn, and Colonel Leslie C. Multzer, commanding officer, Maxwell Air Force Base.

DATA SHEET D-GEN. 47

Low Voltage Extension Light Cords and Systems

Published by National Safety Council
425 North Michigan Avenue, Chicago 11

1. Many workmen seem to believe that a 120-volt circuit is not harmful and that a fatal shock will occur only if the worker is in poor physical condition with, for example, a weak heart. This erroneous opinion stems from the fact that some people working with electrical equipment and insulated from the ground have repeatedly received shocks that were not fatal.

2. Many injuries from 120-volt systems have resulted when extension lights with defective line cords or fittings have been used and when lamps have broken and exposed the live filament wire.

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws, rules and regulations, and municipal ordinances. Reprints of Data Sheets are available from the National Safety Council.

3. Defective extension lights used by workers whose body resistance to ground is low can cause burns, falls as a result of sudden shocks, or even fatalities.

Figure 1. Low-voltage extension light used by a worker while repairing a sump pump in a wet and well-grounded area.

Electric shock

4. Serious electric shock is not entirely dependent upon the voltage of the power source. The ratio of the voltage to the resistance determines the current that will flow and the resultant degree of hazard. In terms of a formula, this ratio is:

$$\text{Current through body} = \frac{\text{Voltage applied to body}}{\text{Resistance of body and contact}}$$

5. The amount of current flow through the body of the worker is regulated by his resistance to ground and by the conditions in which he is working. When his feet or hands are wet, his skin resistance will be lowered and the flow of current through his body increased. This hazard is greater if working conditions are wet or if the worker perspires freely to produce a combination of wet skin and body salts. The salts provide good conductance for electricity.

6. In certain processes and plant operations, such as dairies, breweries, canneries, steam plants, and construction work in wet areas like tunnels, portable extension lights are used as part of the operation or for inspection and maintenance work. (See Figure 1.)

7. In these operations workers are exposed to humid or wet conditions and may easily come in

contact with grounded equipment. If a worker makes contact with a live circuit under these conditions, the amount of current used to light a 7½ watt light bulb can be fatal.

8. Many companies have confidence in the safe use of heavy duty extension cords when they are properly maintained, but they feel that lower voltages give an *added* safety factor.

Equipment failure

9. Failure of electrical equipment because of misuse is a frequent cause of shock. Workers are prone to abuse extension light cords by pulling them over sharp metal objects, hanging them across equipment, kinking them and letting them be run over by industrial equipment. They also often strain the cords in operation so that the plug and fixture become parted and expose live wires.

10. In some cases the maintenance department or handyman has installed brass shell lamp fixtures, which become energized if they come in contact with exposed and loose terminal wires. This defect is difficult for the worker to recognize because the lamp will light and appear to be safe until contact is made with the metal shell.

Figure 2. Receptacle and matching plug for a low-voltage built-in light circuit. This equipment is different from that used on 120-volt circuits.

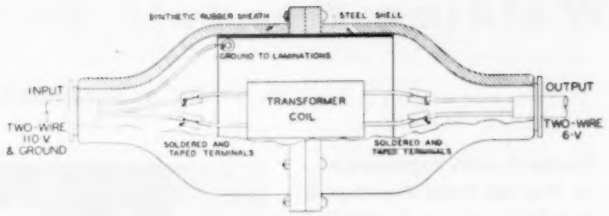

Figure 4. Sectional view showing grounded primary side of a portable low-voltage transformer unit.

Preventive methods

11. *Grounding.** To reduce the electric shock hazard, it is important that all noncurrent-carrying metal parts be properly grounded. Portable equipment depends on the separate low resistance grounding wire, attached to the framework and connected to a good ground, to direct the dangerous voltage if a defect develops.

12. This method, however, is not always positive because so many factors are involved such as types of grounds, grounding conductors, grounding receptacles, continuity, and maintenance.

13. *Isolating transformers* are sometimes used to reduce the hazard of electric shock. A circuit through an isolating transformer consists of a 120-volt primary side and a 120-volt secondary side, ungrounded.

14. However, the hazard exists the moment that isolation fails because of breakdown of the transformer itself. To prevent accidental grounding of the secondary side and a possible source of danger, a sensitive ground detector relay can be installed into the circuit.

15. *Low voltage transformers*, available commercially in several makes and types, do reduce the shocks hazard to a minimum.

*See Data Sheet D-Gen. 42, "Grounding of Portable Electric Equipment."

Figure 3. Portable unit in metal case, with holding racks for coiled extension cords. (Courtesy Consolidated Water Power and Paper Company.)

Since the transformers are designed as portable units, they are automatically limited in current-carrying capacity. They reduce the 120-volt primary to 32 volts, 12 volts, or 6 volts on the secondary circuit (lamp side).

16. The 32-volt system is primarily used for attachment of low voltage power tools or where an extra long extension from the transformer to the light itself would cause a voltage loss and, consequently, inefficient lighting.

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Welding Needn't Be Hazardous

By SIMON A. GREENBERG

Research and experience on the job have developed standards of good practice

ACCORDING to statistics, you are probably safer while welding than while driving your car along a highway on a holiday weekend.

Safety in welding and cutting operations has been achieved through the cooperative efforts of management, employees, equipment manufacturers, and all others interested in good welding practices. Organizations such as the American Welding Society and the International Acetylene Association provide the means for bringing these different interests together and promoting general use of good practices.

Safety in welding and cutting has become an accomplished fact through a recognition of the hazards involved in dealing with fire, compressed gases, hot metals, sparks, fumes, and other such sources of hazards; and through the establishment of proper precautions to control the hazards involved.

The efforts of AWS and IAA have resulted in the availability of information on safe practices and its adoption by industry. The International Acetylene Association's publication, *Safe Practices for the Installation and Operation of Oxy-Acetylene Welding and Cutting Equipment*, is universally recognized. More recently a new American Standard, *Safety in Electric and Gas Welding and Cutting Operations*, has been issued by the American Welding Society. This standard replaces the American War Standard of the same name which was so widely used during the last war.

Fig. 2. A safe and convenient means for transporting and using cylinders.

The Committee which prepared Z49, as this standard is usually called, included equipment manufacturers, welding engineers, safety engineers, insurance company representatives, and governmental labor officials. The requirements are sound and practical, yet provide the necessary protection. Adherence to the practices recommended in Z49 or the IAA "Safe Practices" booklet will assure safety in welding and cutting.

A review of the requirements of Z49 will show that *safe* practices in welding and cutting are the same as *efficient* practices. For example, use of excessive pressures in gas welding or cutting not only may cause flying sparks, but waste fuel gas. Fig. 1 shows how excessive oxygen-cutting pressure increases the distance that sparks will fly. Strewn scrap and dirt are a fire hazard; they also hamper movement of the welder or cutter, hence make welding or cutting more difficult. Poor ventilation may not only be a source of toxic fumes, but may make visibility difficult, causing poor welding.

Let us review a typical setup for gas welding and note the part each of us must play in achieving safety. (The same basic factors

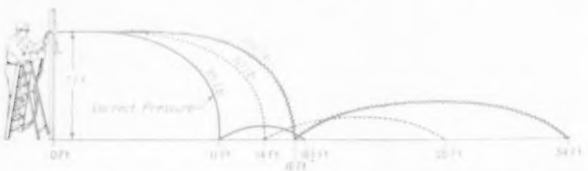

Fig 1. Relation of cutting-oxygen pressures to distances resulting sparks will fly.

SIMON A. GREENBERG *is Technical Secretary of the American Welding Society.* *This article is adapted from a paper presented at the Annual Meeting of the International Acetylene Association, May, 21, 1951, Montreal, Canada.*

Fig. 3. Approved storage facilities for cylinders not in use.

will apply to oxygen-cutting operations.)

Management must do its share by providing a safe location, specifically for regular welding operations. (This is as true for maintenance welding as it is for production welding.) Regularly designated welding areas should have floors of non-combustible materials, should be well lighted and well ventilated. Proper benches, material handling and positioning equipment should be available to permit safe and efficient handling of assemblies before, during, and after welding.

From the standpoint of welding equipment and materials, cylinders, torches, hose, and other welding apparatus should all have proper locations and hangers provided as necessary to prevent damage. Such facilities should include stands, cradles, or other means for handling and fastening cylinders during use to prevent their falling.

Fig. 3 illustrates a good storage arrangement for cylinders not in use. Oxygen cylinders are separated from acetylene cylinders, as are full cylinders from empty cylinders. Provision should be made for hanging torches and hose in a safe location when not in use. Proper eye protection should be provided for welders and helpers and the welding area should be divided from the rest of the shop by flameproof curtains or partitions.

Equipment manufacturers and suppliers do their part by providing equipment which has been carefully designed and engineered with safety in mind. Equipment, such as torches,, should have the seal of approval of the Underwriters' Laboratory, or the Factory Mutual Laboratories, or a similar agency. Hose should be of durable construction and conform to the requirements of Z49.

Equipment manufacturers go to considerable trouble and effort to furnish information concerning the handling and operation of their equipment. Such information should be available to operating personnel and posted in a conspicuous location in the welding area. The posters and instruction sheets provided with standard equipment should be made available for ready use. No one should be permitted to weld or cut before he can demonstrate that he is thoroughly familiar with the instructions.

A welder should learn to set up his equipment properly. The instructions of the manufacturer as to the connection of regulators to cylinders and the attachment of the torch should be followed. Not all torches operate alike; this is true not only for torches made by different manufacturers, but for different torches made by the same manufacturer. A match should never be used to light a torch; always use a friction lighter. A stationary pilot light is satisfactory for large production operations.

Before starting to weld, dirt and scrap should be cleared away. The work should be examined to be sure that it is secure and will not fall during welding, and that it is not oily or greasy.

Maintenance of equipment cannot be overstressed. Equipment should be treated with care. Torch tips and nozzles, for example,

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Fig. 4. Proper clothing for gas welding and heavy cutting.

Fig. 5. Sheet metal guards and asbestos sheets protect combustible materials.

Manual Makes News

The first copy of the new "Accident Prevention Manual for Industrial Operations" is presented to Fred W. Braun, vice-president, The Employers Mutual Liability Insurance Company of Wisconsin and chairman of the NSC Industrial Conference, by Kent Francis, editor of the Manual. Seated, left to right, are Ned H. Dearborn, president, NSC; Guy L. Noble, vice-chairman, Board of Directors, and R. L. Forney, general secretary.

THE ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS, Second Edition, will make its bow to the membership and to the safety fraternity this month. There is, quite literally, nothing like it. More than 800 pages of tightly packed, practical information for the prevention of fire and injury in American industry, it far exceeds, in scope of subject matter, any other publication in the field.

Work on the Second Edition was started in the spring of 1947, less than a year after the production of the original volume. Reorganization work continued for several months before preparation of script was started. It was first intended to make only minor revision in certain parts of the first MANUAL, but planned changes were so sweeping that a completely new draft was prepared.

In appearance the new book bears a strong family resemblance to its older brother. The binding, however, is an appropriate National Safety Council green, with a bold cover design stamped in gold. The design is even more distinctive in the second edition than in the first. No safety man or executive who has it on his desk or the book shelf can fail to find it with a glance.

The book will look familiar to users of the first edition for another reason. The sign posts to subject matter have been left as they were. There is a single-page Table of Contents at the front of the book. Each section starts with its own list of contents, and there is an exhaustive alphabetical index at the end of the book.

Experience with the first edition has shown much demand for certain parts of the MANUAL for use with supervisors, crew leaders, and other men in the foremanship group. For that reason it was decided to reprint each section of the second edition in the same page size so that copies of the separate chapters could be used freely without requiring the purchase of a large number of complete volumes.

This decision had a considerable effect on the problem of organizing material. Some subject matter, machine guarding, for instance, naturally bulks large in any volume on safety engineering. To avoid producing top-heavy section reprints on such subjects, and to resolve the inevitable problems of pricing which would arise from them, the second edition was organized into 26 sections, as contrasted to the 15 parts of the first.

In the process of this reorganization, certain parts of the old book disappeared entirely, being absorbed into other parts. Such an absorption took place in the case of chemicals, which, in the second book, have been treated in their various aspects as industrial poisons, problems of handling and storage, fire and explosive characteristics, etc. In the first edition they were dealt with in a chapter by themselves.

Original drafts for each of the 26 sections were prepared by the staff engineers of the Industrial Department. Review copies were, following the Council's long-established custom with all technical publications, sent to qualified reviewers for comment and analysis, including members of the Industrial Conference, and particularly to the Committee on the Accident Prevention Manual headed by William S. Smith of the Ford Motor Company.

Other members of the committee were: Edward R. Grannis, vice-chairman, E. T. Lee, Stuart Mansfield, George Nuernberger and H. L. Smith.

The MANUAL therefore rests its authority not only on the research done by the staff men, their own competence and experience, but on the experience and opinions of Council officers and committee-

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Cause AND CURE

These examples, taken from actual cases, are presented for the use of people responsible for safety. It is believed that these, or similar cases experienced in the reader's own plant, can serve as a basis for safety discussion.

Tools and Moving Parts Don't Mix

Tractor operator, age 37, sustained fractures of four bones in right hand and was disabled for four months when a revolving fly wheel forced a socket wrench into the palm of his hand. He attempted to drive his tractor up a steep grade, and after several trials, noticed that the clutch was slipping. He backed tractor down, placed transmission in neutral, left engine running, and prepared to tighten clutch. He removed the floor cover over the clutch assembly, took the wrench in his right hand and, while maneuvering to make adjustment, the end of the wrench contacted revolving fly wheel.

Correction: The accident is typical of many serious ones involving mobile equipment and emphasizes fundamental safe procedures that should be known and observed by all operators and repairmen. One of the basic safe practices in doing any work on or near fans, fly wheels, gears, shafts or other moving parts is to stop the motor first. All workers having duties requiring them to oil, adjust, or repair any type of equipment should always observe this fundamental practice. Major adjustments and repairs should be made only by service men. Furthermore, all parts essential to safety should be inspected at regular intervals.

All Hung Up

A workman was instructed to cut a piece of dunnage to length. Without authorization or knowledge of his supervisors, he used an electric hand saw. The guard on the saw "hung up" and as he reached under to free it with his gloved hand the saw caught his glove and severely cut the middle finger of his left hand.

Correction: The following solutions to this problem are suggested:

a. Temporarily stop the use of these tools until each is given a thorough inspection and pronounced in absolutely perfect working order before being put back in use.

b. Give a refresher course on the use of the tool including this minimum: (1) Don't wear loose fitting gloves when using powered wood cutting tools; (2) never touch anything under an electric hand saw until the saw is on its side, the current *disconnected* and the blade *stopped;* (3) don't operate an electric hand saw *anywhere, anytime,* when the guard is jammed.

Following a thorough investigation of this accident, copies of a written order were given to all employees calling attention to several accidents resulting from the improper operation of electric hand saws and stating that only those fully qualified and specifically designated by appropriate authority would be permitted to use a power driven saw. The order further stated that offenders would be subject to disciplinary action.

The SAFETY VALVE

Thoughts on a Home-Bound Bus

THE SUBURBAN COMMUTER, according to some city folks, is a pampered person. He lives out among the flowers and fresh air and has a comfortable seat on the train every morning and evening. And does he appreciate it? Nope . . . he's always beefing about the local taxes and the railroad's high fares and lousy service.

Suburban life is pleasant, particularly if you can get to work on one fare and a minimum of wear and tear on your calluses at each end of the ride. The less lucky ones have to find additional transportation. If the bus service to the home station isn't convenient, mama runs a taxi service, getting pop off to work and the kids to school. And downtown there may be another enervating ride on a jammed bus.

All that riding means many tiresome hours and quite a chunk of cash each month for something that isn't any fun at best and often is downright uncomfortable. And the mass transportation agencies are always showing their patched pants to the regulatory bodies in petitions for fare increases.

Except on my first job in Chicago, when I rode precariously on the rear steps of a Cottage Grove surface car, I have had relatively comfortable transportation. When NSC was doing business over in the Opera Building we were just across the river from the station. At home, I was an easy five-minute walk from the train (my own figures, not the realtor's). So for 17 years catching the 7:40 and the 5:10 became semi-automatic.

Now a bus which stops by Mr. Wrigley's terra cotta tower offers the most convenient way of getting to 425 North Michigan. My schedule is such that I can get a seat most of the time. Lake Shore Drive is fascinating the year 'round.

Only once in several months have I been shaken out of my seat by an emergency stop—something that used to happen at least once every trip when I was in a share-the-ride plan. But a bus has to buck rush-hour traffic jams and with a full load it has more pounds of human flesh per cubic foot than vehicles that ride on rails.

The "A" bomb isn't the only thing that makes the far-away hills look good to a lot of people.

* * *

Baths—Ancient and Modern

IF YOU WANT to feel inferior, just compare the bathroom in your home with the one designed by Terance Robsjohn-Gibbings in *Look* for June 5, 1951.

Mr. Robsjohn-Gibbings, who sneered at traditional design in *Goodbye, Mr. Chippendale*, has some caustic comments on the "claustrophobic cubicles" that house the bare necessities of cleanliness and sanitation.

Having been brought up amid rather primitive surroundings, with a telephone booth in the back yard, and bathing in a wooden tub by the kitchen stove on Saturday night, I am not unappreciative of esthetic as well as hygienic developments. I can even look with detached admiration on Mr. R-J's plumbing dream.

It suggests a Roman emperor's palace in the effete days of the empire before the unwashed barbarians took over. In the center of a spacious room is a magnificent marble tub. Above it is an upholstered panel which can be let down over the tub in case some member of the household wants to take a synthetic sunbath.

There are two arm chairs and a table with ash trays, magazines, and other aids to relaxation.

No cost estimates are given for this palace, but I suspect they would be of merely academic interest to most of us.

* * *

In This Issue . . .

THE AVERAGE PERSON finds it difficult to reconcile purposeful and adventurous living with the uninspiring dictionary definition of safety. Years ago Albert W. Whitney did the safety movement a signal service by liberalizing the safety man's ideas of "safety first" while proving to the layman that risk was justified when the goal was worth it. In a guest editorial this month, Dean Paul A. McGhee of New York University gives a fresh interpretation of safety—not merely freedom from injury and sudden death but an important force for magnificent and creative living. (Page 17.)

* * *

Most of us can remember when pharmacy was a simple science—and the druggist could fill prescriptions for any ailment then known from a few jars with mysterious Latin inscriptions. Now the druggist carries a bewildering stock of antibiotics, hormones, vitamins, etc., and the scope and complexity of the pharmaceutical industry is growing by leaps and bounds. The manufacture of these newer products requires close control of the working environment, and many of these refinements promote safer and more healthful working conditions. (Page 18.)

* * *

Have you an unusually skilled craftsman in your plant—one who feels that safety rules are for others and one who could quit and get a good job in any plant if you irritated him? Our fictitious Safety Engineer is confronted with such a character; will his plan for winning him over succeed? (Page 36.)

Carman Fish

Congress Programs Ready

The preliminary edition of the Congress program will be mailed to members during August.

The Annual Meeting on Monday morning will be addressed by Millard Caldwell, administrator of the Federal Civil Defense Administration.

The Early Morning Sessions at 8:45 Tuesday, Wednesday, Thursday and Friday will be conducted by Dr. Irving J. Lee, professor of public speaking, The School of Speech, Northwestern University. The general theme of the series will be, "Human Understanding—a Two-Way Channel."

The Exposition will fill every available foot of floor space in the Casino Room of the Congress Hotel and the Exposition Hall of The Stevens.

More guest rooms have been made available by Chicago hotels but demand is keeping up with supply. Those who have not yet made reservations are urged to send applications without delay to the Housing Bureau of NSC Headquarters.

Date and Hotel Assignments

	Hotel	Oct. 8 Monday AM	Oct. 8 Monday PM	Oct. 9 Tuesday AM	Oct. 9 Tuesday PM	Oct. 10 Wednesday AM	Oct. 10 Wednesday PM	Oct. 11 Thursday AM	Oct. 11 Thursday PM	Oct. 12 Friday AM
Sectional Sessions										
Aeronautical Ind.	Palmer H.		X				X			
Air Transport	Palmer H.				X					
Auto & Mach. Shop	Congress				X				X	
Cement & Quarry	Stevens						X		X	
Chemical	Stevens		X		X		X		X	
Coal Mining	Stevens		X		X		X		X	
Commercial Vehicle	LaSalle			X	X	X	X	X-jt.	X	
Construction	Stevens				X		X			
Electrical Equip't.	Stevens						X		X	
Food	Morrison				X		X		X	
Glass & Ceramics	Congress		X		X					
Industrial Nursing	Stevens & Palmer H.		X	X		X				
Marine	Morrison				X		X	X	X	
Meat Pkg.-Tng. & L.	Congress		X		X					
Metals	Stevens		X		X		X		X	
Mining	Stevens		X		X		X		X	
Petroleum	Stevens		X		X		X			
Power Press	Congress		X				X			
Printing & Publ'g.	Palmer H.				X		X			
Public Employee	Palmer H.		X						X	
Public Utilities	Stevens				X				X	
Pulp & Paper	Stevens		X		X		X		X	
Railroad	Morrison				X		X		X	
Rubber	Stevens				X		X			
Textile	Congress		X		X		X			
Traffic	Congress		X	X	X	X	X	X	X-jt.	
Transit	LaSalle				X	X	X	X-jt.		
Wood Products	Congress		X		X		X			
Divisional Sessions										
Farm	LaSalle			X	X	X	X			
Home	Stevens			X					X-jt.	
School & College	Morrison		X	X	X	X	X	X	X-jt.	
Women's Activities	Blackstone		X							
A.S.S.E.—Subject Sessions										
A.S.S.E. Ann. Mtg.	Stevens			X						
Subject Sessions	Stevens & Congress					X		X		X
General Sessions										
Annual Council Mtg.	Stevens	X								
Banquet	Stevens						X Eve.			
Early Morn. Sess.	Stevens			X		X		X		X

(Fiction)

THE CRAFTSMAN

By BILL ANDREWS

August 2, 1951

At least six of the members of the supervisory safety committee told Bill just what he ought to do. They told him emphatically, often two at a time—and often what they told him was contradicted by what another said.

I am deeply convinced of the usefulness of our safety committee. It is an unrivalled organization for the solution of obvious problems, for the stimulation of interest, for the teaching of general principles, for the development of a sense of the importance of safety and the even more important sense that the foreman, collectively, must lead the fight against accidents.

I have even seen such committees deal intelligently with specific, tricky questions of tactics—but this meeting was failing to do so.

I gently shut off discussion and led the talk on to the next point on the agenda. After the meeting I asked Brill to come to my office.

Brill is the foreman of a rather new unit, a specialized development machine shop working out the bugs in some ordnance stuff for the Army. Security reasons have kept it rather isolated from normal plant life, and Brill himself is fairly new with Jackson-Barnes, though a thoroughly seasoned machinist and foreman.

He was obviously irritated at his treatment in the committee, so I held the talk off on generalities till Harry Dexter brought us coffee. When some of the tensions had eased, I tried to state the problem:

"This man Smith is bucking you on goggles. You say it's because he is an individualist—a highly skilled craftsman with years at the trade, who feels no obligation to listen to you when you give him advice on a detail of doing his job. Obviously his resistance has a bad effect on the other men in the shop. But I'm not quite clear on how this situation differs from many others you must have encountered as a machine shop foreman. You must have run into able and individualistic men before—they're not a rarity in your trade."

Brill nodded. "You're darned well right they're not. But, look, this whole situation is complicated. First of all, this isn't a production job—but the pressure's hot and heavy for us to get it done quick. Smith isn't just a machinist in the ordinary sense, not just a good craftsman. He's about two-thirds an inventor. He's the best man in this part of the state for the kind of job I've got him on—that's why I've got him and why I'm paying him twice the scale. His argument is that he knows how to work safely without goggles and that it's none of the company's business what he wears on his eyes if he does his job and doesn't get hurt. I can crack down on him—sure! And if I do, he can take his pick of jobs and tell me to go jump in the lake. That means delays—maybe a week, maybe a month—in the job, and that means I look bad and the Army has to wait for stuff it claims it needs the day before yesterday."

Jim Mason asked, "Why does a guy pick something like this to buck on? Why not money, or a promotion? The way you talk, he could almost write his own ticket."

Brill nodded. "I'll tell you," he said. "Guys like Smith aren't like you and me. We're trying to do a job, and we're ambitious. We want better jobs, responsibility. We know that to get them we

have to get along with other people. But Smith's more like—well, like an artist. He loves his work—the kind of work he's doing, the kind he does well. He doesn't want to be a boss. He doesn't want responsibility. He just wants to do his job his own way for whatever satisfactions he can get out of solving tough problems and executing good work.

I've seen guys like him express their independence different ways. I've known some who wouldn't stay on a job unless a crowd of admiring men stood around and listened to their story telling during lunch hour. And I've known some who never talked at all. I knew one who always wore bright green shirts.

"Smith's particular way of showing that he don't give a hoot for any boss is this goggle business."

Jim Mason said, "So all the normal good arguments for wanting goggles are useless. And discipline is useless, unless we want to get him out of the plant."

Brill nodded. "That's right, and I *don't* want him to leave. It isn't as if he was a crane operator, endangering others. It's just his own eyes. Darn him, he's safety-minded otherwise. Keeps his work space neat, always uses a brush on chips, wouldn't think of making an adjustment without shutting down his machine. Even on eyes, I've heard him tell the other guys to wear goggles—says they don't know how to work safely without 'em. But he does it in a way that makes a guy feel he's admitting he's a poor mechanic if he does wear 'em."

I asked, "Just what effect does his example have on the others?"

Brill thought a minute, then said, "They wear goggles, if they think I'm around. Some of 'em—most of 'em—do just about all the time. But there are a good many who think the way to be a good mechanic or look like one is to evade the use of goggles. So, when I'm not around the goggles are usually in their pockets."

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Muffling the Noisemakers

Three-inch and six-inch mufflers connected downstream from noise makers.

IN the development laboratory of AiResearch Laboratory at Los Angeles, noise is one of the more complex problems. Until recently, lack of general knowledge of its effect on the human structure has limited corrective measures to a series of experiments.

Management has realized that noise lowers efficiency through physical and mental strain resulting in fatigue. Workers complained of headaches and partial deafness lasting from two to 24 hours after eight hours' exposure.

New and permanent test facilities generally incorporate sound-proofed instrumentation rooms to isolate the test technician from the noise source. However, in the original test areas, where temporary set-ups are made, it is not always possible to furnish sound-proof rooms for the tests and the noise level is quite high.

Hissing sounds originating from air escaping from measuring sections, vacuum pumps, generators, and overspeed tests on wheels with speeds in excess of 100,000 r.p.m. are the main sources of noise. The most disturbing noise seemed to be the hissing sound of air released through measuring orifices, valves, and exhaust ducts.

In an attempt to reduce these annoying high-frequency hissing noises, a portable muffler was designed and built. This device has reduced the noise level far below our original expectations and it doesn't disturb or distort our test information.

The accompanying illustration shows the two sizes of mufflers developed to connect downstream from the noise maker. The volume of air flowing and the pressure drop allowable govern the size to be used.

Data recorded for the six-inch muffler shows it to be 98 per cent. The frequency spectrum has no noticeable effect on the muffler's efficiency. Regardless of the frequency or intensity of the noise as introduced into the muffler, only a whisper can be heard leaving.

The mufflers have been provided with a drain for use with steam. They will stand temperatures up to 800 degrees F. When mounted on casters the muffler becomes a portable unit that can be moved quickly to any test facility.

These mufflers were developed under the direction of Robert Kesler, supervisor of the AiResearch Strato Laboratory.

William C. Kerber, New Amsterdam Casualty Company, addresses group of employees of Lansburgh & Brother department store, Washington, before presentation of the skit, "It Pains to Be Ignorant."

It Pains TO BE IGNORANT

A safety pantomime with a department store setting

This pantomime script was prepared by Lansburgh & Brother department store, and presented at their annual storewide welfare and safety meeting.

* * *

(Enter two salesladies)

MISS DO IT RIGHT: Walks across stage in businesslike fashion.

MISS BLUNDERBUSS: Walks slowly, swaying the hips. At center of stage she turns her ankle because of her high heels, moans, and grabs ankle.

MISS DO IT RIGHT: Helps her to chair, goes to phone and dials for nurse.

NURSE: Rushes in with cart and bandages ankle.

(Exit Nurse)

TWO SALESLADIES: Go behind counter and arrange merchandise.

(Enter two customers)

TWO CUSTOMERS: Pause, "look over" salesladies, nudge each other, nod toward salesladies, straighten ties and go to counter.

ALL: Go through motions of making sale.

MISS BLUNDERBUSS: Opens bottom drawer, takes out shirt, but does not completely close drawer, then rushes by and bangs leg. Hops up and down, holding leg and gesturing for help.

MISS DO IT RIGHT: Calls for nurse, then helps Miss Blunderbuss to chair.

NURSE: Rushes in and bandages leg.

(Exit Nurse)

MISS DO IT RIGHT: Gets shirt from bottom drawer, closes drawer properly.

MISS BLUNDERBUSS: Hobbles back behind counters, sticks pencil behind ear, it falls to the floor, she stoops to pick it up and bumps her head on counter.

MISS DO IT RIGHT: Helps her to chair and calls for nurse. *(Gestures of futility.)*

NURSE: Rushes in and bandages head.

(Exit Nurse)

MISS DO IT RIGHT: Goes back to waiting on customers, takes pencil from salesbook, writes

salescheck, rings sale on cash register and completes transaction.

MISS BLUNDERBUSS: Comes back to counter, writes salescheck, takes money to cash register, rings sale, turns to smile at customer and closes drawer on hand. *(Frantic gestures of great pain.)*

MISS DO IT RIGHT: *(Hands on hips, show of disgust.)* Calls for nurse and helps Miss Blunderbuss to chair.

NURSE: Rushes in and bandages hand.

(Exit Nurse)

MISS DO IT RIGHT: Completes transaction for her.

TWO CUSTOMERS: Leave, shaking heads in disgust at Miss Blunderbuss.

TWO SALESLADIES: Go back to counter.

(Woman customer enters)

MRS. SNOOTYPUSS: Pauses inside department and raps on floor with umbrella for attention.

MISS BLUNDERBUSS: Approaches customer. At center stage, picks up a pin from the floor, looks around for a place to put it, shrugs and sticks it in sleeve of nearest coat. Greets customer, shows her several coats and finally helps her put on *the* coat.

MRS. SNOOTYPUSS: Jerks arm out of sleeve, makes great gestures of pain and indignation, and shows red pin scratch on inside of arm.

MISS BLUNDERBUSS: Helps customer to chair.

MISS DO IT RIGHT: Calls for nurse.

NURSE: Rushes in, applies medicine and bandages to arm, waves smelling salts under her nose, motions for Miss Blunderbuss to bring a glass of water.

(Exit Miss Blunderbuss)

MISS DO IT RIGHT: Hangs up coat, takes pin from sleeve and

—*To page 96*

ABOVE: Porter cuts hand on broken glass left in wastebasket by some thoughtless employee.

UPPER RIGHT: Miss Blunderbuss helps customer try on a coat. Customer, Mrs. Snootypuss, catches arm on a pin in the coat.

RIGHT: Miss Blunderbuss receives first aid after closing the cash register on her hand.

It Works BEFORE the Emergency

By A. J. POYNTON

SAFETY devices available for the laboratory-size rubber mill include foot pedal, knee, and cable, types which are invaluable. However, all these types rely on the operator tripping switches consciously, *after* the fingers have been caught in the nip of the rolls. As such these can be classed as emergency devices rather than safety devices.

The ideal is to have a safety device which operates automatically, *before* an emergency arises, by preventing the fingers from reaching the nip of the rolls. It was with this in view that the gate-type safety device was developed.

Essentially this type of safety device consists of a swinging gate of ½ inch lucite, or other transparent material, placed over the front roll, with clearance of one inch between the top of the roll and the lower edge of the gate. This allows the sheeted rubber to pass through, even when folded over, but not the hand.

These features are seen in Figures 1 and 2. The gate is keyed to a ½ inch shaft turning in standard ½ inch pillar block bearings which are attached to base plates. These base plates are fixed to the mill body. The shaft is machined at one end in the form of a double-acting cam, with the roller of a microswitch resting in the cut.

Rotation of the gate in either direction depresses the lever of the microswitch, which is in circuit with the starter button at the front of the mill and the brake motor trip switch. Depression of the microswitch therefore stops the rolls instantaneously. The sensitivity of the microswitch may be adjusted by vertical movement of the microswitch.

Figure 1 shows the assembled safety device in position, and also the clearance sufficient to allow the sheeted rubber to pass through. Figure 2 shows details of the positioning of the microswitch. It also shows how the hand, following-up the rubber towards the nip of the rolls, rotates the gate tripping the switch. This feature stops the rolls *before* an emergency arises. Excessive rotation of the gate, which would probably damage the arm of the microswitch eventually, is prevented by pins in the shaft, operating in stops machined in the inner face of the bearings.

These pins also serve as end stops. As can be seen from the figures, reaching the nip over the top of the shaft is prevented by a lucite plate attached to the gate, extending one inch above the shaft at an angle of forty-five degrees to the vertical, so that any pressure from the top would rotate the gate and trip the switch.

As can be seen in the accompanying figures the device is simple both in construction and operation. It requires no modification to the mill, the base plates being attached to the mill body by the posts carrying the cable safety device, and being positioned by the front oil cup pipes. The leads to the microswitch pass through a shield to insulate the connections. The complete assembly can be installed in about ten minutes, and does not interfere in any way with normal operation.

It is felt that this device could be adapted for use with roller mills other than the laboratory-size rubber mill.

* * *

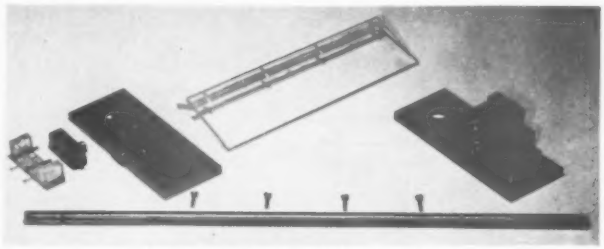

Fig. 3. Parts of the safety device for rubber mills.

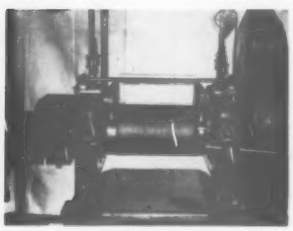

Fig. 1. Assembled device in position. Ample space is allowed for sheet of rubber to pass through.

Fig. 2. Details of positioning of microswitch. Hand following up the rubber toward the nip of the rolls rotates the gate, tripping the switch.

THE DEVICE described here was developed during a thesis on "The Effect of Molecular Weight Distribution of Natural Rubber on its Reenforcement by Fillers," and was made possible by the R. S. Crawford Fellowship for Research on Elastomeric Materials at the Massachusetts Institute of Technology. The fellowship has been endowed by the Elastic Colloid Corporation, which loaned the equipment to the fellowship. The author acknowledges helpful advice by Professor H. C. Weber, Mr. H. Carter, and Mr. H. Chasen of the Department of Chemical Engineering, and Mr. M. J. Dondero, the safety engineer.

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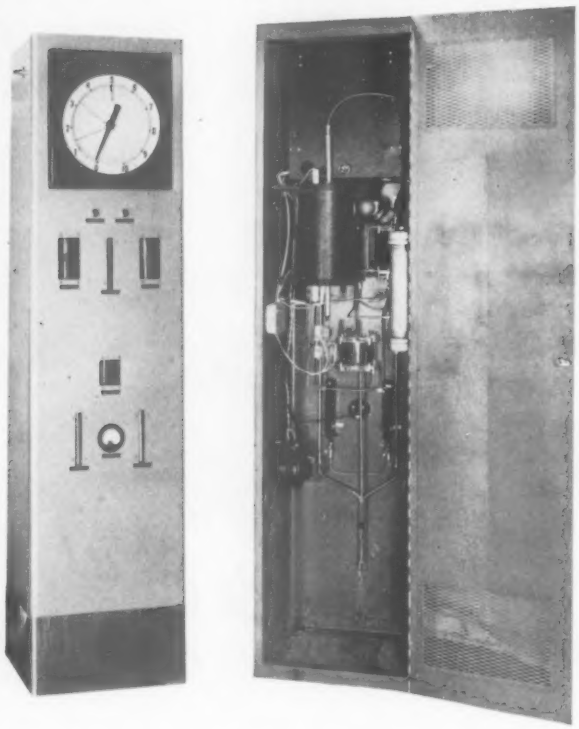

Exterior and interior views of recently developed sensitive device designed to detect low concentrations of chlorine in air.

FOR measuring and recording various contaminating gases in air, a sensitive instrument has recently been developed by the Davis Instruments Division of Davis Emergency Equipment Company, Newark, N. J. The instrument is known as the Davis Electro Conductivity Analyzer.

Gases which will ionize in water are detectable by this method. Typical gases encountered in industry are chlorine, sulfur dioxide, hydrogen sulfide, carbon disulfide, ammonia, and carbon tetrachloride.

The analyzer operates on the electro-conductivity principle of gas analysis. Gas-air samples are scrubbed with pure water. The water is passed through the conductivity cell which contains two electrodes. Changes in electric potentials are a reflection of quantities of air contaminants.

The cabinet type analyzer is a permanent type of installation, about seven feet high. The instrument will indicate chlorine contents in the range of 0 to 5 parts per million. The minimum concentration of chlorine which will produce ill effects after extended exposure is about 1 part per million.

A gravimetric type water aspirator draws air or gas samples into the unit and the amount of ionized gas is continuously recorded in terms of parts per million. A special Brown recorder is used to obtain high sensitivity of air contaminants.

The accompanying illustrations show the exterior with recording hand and chart and the interior which shows the general internal construction of the unit.

Although the low range analyzer has not yet been introduced in the field the manufacturer reports that it has operated satisfactorily in the low range in the laboratory.

Plan Fertilizer Industry Safety Program

Plans for a fertilizer industry safety program were made at the first meeting of the advisory committee of a newly organized fertilizer committee of the chemical section, National Safety Council. The meeting, held in Baltimore, May 16, was under the chairmanship of A. B. Pettit, supervisor of industrial health and safety of The Davison Chemical Corporation. A formal program for nation-wide action will be presented October 11 at the National Safety Congress in Chicago.

"Although there are more than 500 fertilizer plants in the United States, prior to this there has never been any organized national effort to reduce the appalling frequency and severity of accident injuries occurring in the industry," Mr. Pettit said in announcing the appointment of the fertilizer committee and the launching of the project at the advisory committee meeting.

The fertilizer industry is being urged to send representatives to the forthcoming National Safety Congress, where measures for reducing accidents and industrial illness, such as the exchange of health and accident information, the maintaining of proper records and the analysis of accident causes, will be discussed. There is widespread interest in the program among the companies, and the National Fertilizer Association and American Plant Food Council have indicated wholehearted support.

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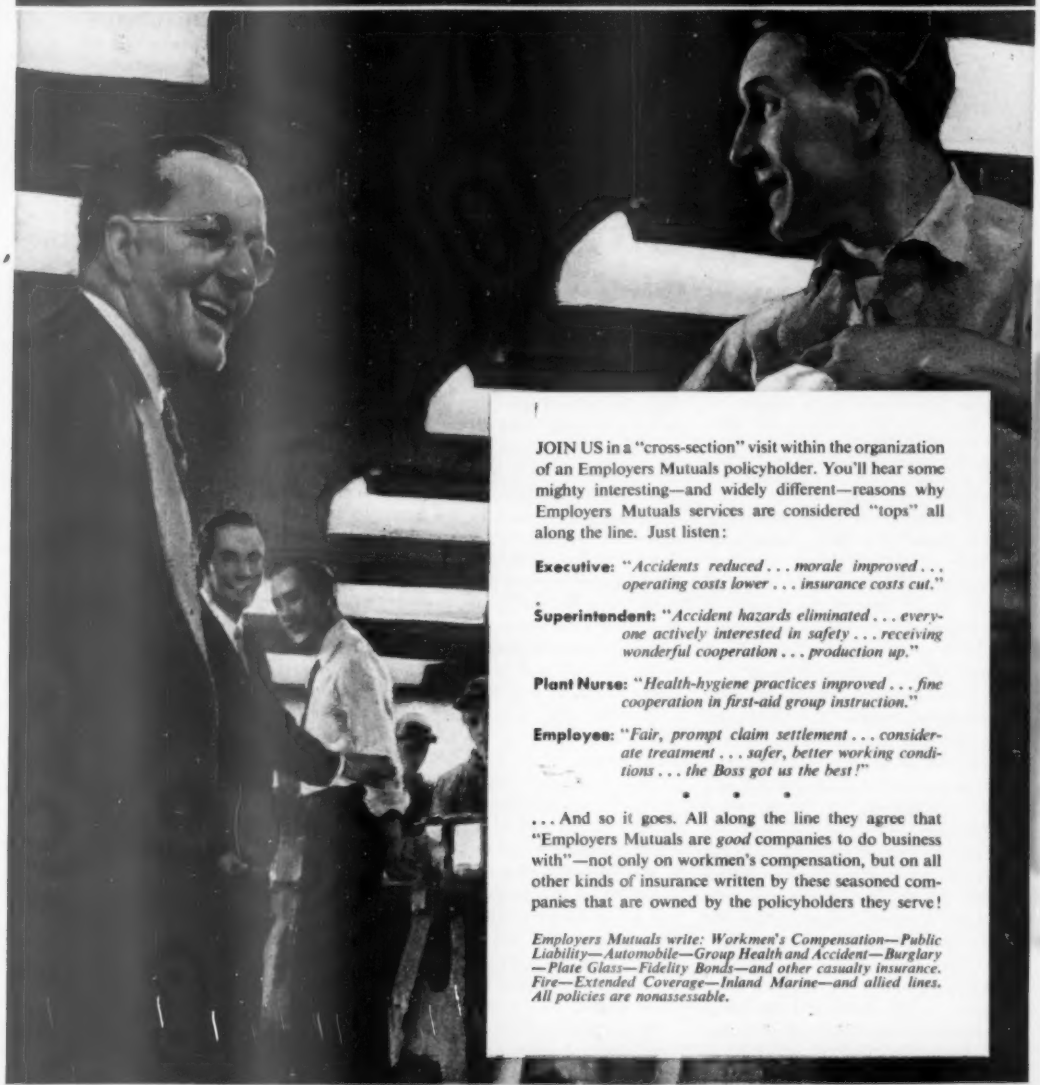

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Industrial Health

Abstracts of current literature on Industrial Hygiene, Medicine, and Nursing

By F. A. VAN ATTA, Industrial Department, NSC

Dust in the Lungs

The Action of Variable Amounts of Quartz on the Lungs of Rats—The Extent of Pathological Change in Relation to the Amount Injected, by S. C. Ray, E. J. King, and C. V. Harrison. The British Journal of Industrial Medicine 8:62-67 (April, 1951).

The Action of Small Amounts of Quartz and Larger Amounts of Coal and Graphite on the Lungs of Rats, by S. C. Ray, E. J. King, and C. V. Harrison, *ibid* 8:68-73 (April, 1951).

The Action of Anthracite and Bituminous Coal Dusts Mixed with Quartz on the Lungs of Rats, by S. C. Ray, E. J. King, and C. V. Harrison, *ibid* 8:74-76 (April, 1951).

This series of three articles is the report of a fairly large scale study of the effects of measured amounts of dust on the lungs of rats in an attempt to assess experimentally the roles of coal and of free silica in the production of coal miners pneumoconiosis. In the first series of experiments pure powdered quartz of small and known particle size was injected into the lungs of a series of rats in quantities of 2, 5, 10, 30, and 75 milligrams by intratracheal injection. This assured that the material was actually put into the alveoli where it could be removed only by elimination into the lymphatic system and also that the dosage was well known.

After the injection the animals were sacrificed at various times up to a year later and the lungs examined for signs of damage.

From the time of injection to the 365th day after, quartz could be found in the lungs, and the experimenters had the impression that it was present in somewhat smaller amounts after the year had passed. This was only a rough impression, however, and could not be checked. The only reaction to 2 milligrams of quartz per rat was a slight reticulation of some isolated alveoli. With increasing quantities of quartz the reticulation and fibrosis became consistently and continuously greater until there was some tendency to confluence at the highest dosage.

In the second group of experiments clean anthracite coal with very little ash, clean graphite of very low ash content and mixtures of the same graphite and coal with the clean quartz used in the first series of experiments were injected into the lungs of a series of rats. In this instance the total injection was 100 milligrams in each case. 100 milligrams of coal and 100 milligrams of graphite and 98 milligrams of coal plus 2 milligrams of quartz and 98 milligrams of graphite plus 2 milligrams of quartz were used for the various series.

The coal and graphite were gradually removed from the lungs so that at the end of a year the quantity was noticeably less than it was in the beginning. The reaction of the coal and the graphite was to produce a small amount of reticulation and the individual particles at the end of a year seemed to be enclosed in fine reticulum fibers.

In the rats injected with anthracite coal plus quartz or with graphite plus quartz, the fibrotic reaction started within two months and in about four months became what is classed as a Grade 2 fibrosis, at which state it remained until the end of a year.

In the third series the action of anthracite and bituminous coal dusts was compared with that of quartz and of mixtures of the coal dusts with quartz. In this instance the dose given to each rat was 100 milligrams made up of 90 milligrams of coal plus 10 milligrams of quartz or 70 milligrams of coal plus 30 milligrams of quartz.

At these concentrations there was severe fibrosis with all of the mixtures studied and there was no observable difference between the fibrosis produced by the mixture of bituminous coal with quartz and that produced by the mixture of anthracite coal with quartz.

It is particularly noticeable that in each of these studies the effect of the quartz was not modified, or at least was not reduced, by the presence of the carbon dust in any of its forms. In the case of the mixtures of carbon dust with 2 milligrams of quartz the effect was considerably enhanced since the mixture produced a definite fibrosis and the 2 milligrams of quartz by itself produced only a minimal reticulation.

The authors suggest that possibly the explanation is that the relatively large quantity of carbon dust interfered with the drainage of the lung and helped to retain the quartz in contact with the tissue so that it was more able to produce damage than it would have been in the absence of coal dust or graphite dust.

Planning Retirement

Your Second Career: Through Planning, Retirement Can Become a Time of New Opportunity. The Lamp of the Standard Oil Company (New Jersey), Vol. 33, No. 1 (March, 1951).

At the New Jersey Refinery of the Standard Oil Company of New Jersey a plan has been developed for study and planning for retirement by some of the older employees. At the present time there are 15 employees in the refinery who are within a year of retirement and who are in a course consisting of a series of five discussion meetings with each other and with a member of the employee relations staff who has made a

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study of the problems of retired individuals.

This program started with the conference on problems of the aging and retired worker called by the public health service just about a year ago. The Standard Oil Company had been a pioneer in the provision of pensions and annuity plans for its employees but had gone along, as has everyone else, on the assumption that when a man retired he was retired and that was the end of it.

Partly as a result of this conference and partly as a result of the program of individual counseling for employees in which the question "What shall I do with myself when I retire" which kept recurring in the course of the interviews, the employee relations staff members investigated the condition of the retired employees of the company.

They found some who were active and happy in their retirement and doing things which they thoroughly enjoyed. One was a business man with a string of tourist cabins in Florida and another, who had been a pipe fitter for the company, was working for himself as a tailor. At the opposite end of the scale was a man who had retired both from his active part in civic affairs and from the company at the same time. As a result of this complete inactivity he had come very close to a complete breakdown which brought him under the care of a doctor who recognized the fundamental cause of his trouble and got him to renew his civic activities.

Since the results of the retirements studied had not been uniformly good and had in some cases been very bad, the employee relations people interviewed some employees who were getting close to retirement age to see how well prepared they were for the change.

They found that most of them did not have the slightest idea what they were going to do after retirement. A typical answer to this question was, "Will spend the winter in Florida," or "We're going to drive out to California." They had not thought that there were going to be many winters and much time after the drive to California.

Since it appeared that the retired employees who had made a good adjustment were invariably the ones who had planned ahead and begun preparations for retirement while they were employed, in some cases even starting new businesses before they left the company's employment, the employee relations people decided to attempt to get the retiring workers to think realistically about their

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No "St. Louis Blues" Here

In recognition of 4,393,000 safe man-hours of operation, each employee of the John F. Queeny plant of Monsanto Chemical Company, St. Louis, gets a thermos jug. The first one is being received by Dr. Charles Allen Thomas (left), Monsanto president, from A. J. Pastene, manager of the plant. The presentation was made during a brief ceremony celebrating a new industrial safety record for the St. Louis area.

Monsanto Chemical Company's John F. Queeny plant, St. Louis, has established a new St. Louis industrial safety record by operating 4,393,030 continuous man-hours without a disabling injury.

The record, also the best ever established in a Monsanto plant, was celebrated at a ceremony at which more than 1500 employees heard Monsanto's President Charles Allen Thomas laud the accomplishment.

In rolling up the impressive total, more than twice the plant's best previous mark, the Queeny plant has operated virtually a year without a disabling injury. The last one occurred June 13, 1950. It was announced at the meeting that all employees will receive thermos jugs as awards for their contributions to the safety record.

Also speaking on the program were Louis H. Antoine, president of the St. Louis Safety Council; John L. Gillis, Monsanto vice president and general manager of the Organic Chemicals Division; B. E. Thomas, division production manager, and August Schneider, president of Local 16, International Chemical Workers Union, AFL.

A. J. Pastene, plant manager and chairman of the executive safety committee, was master of ceremonies and introduced the members of the plant's safety committees. The committees are composed of representatives of both management and the union.

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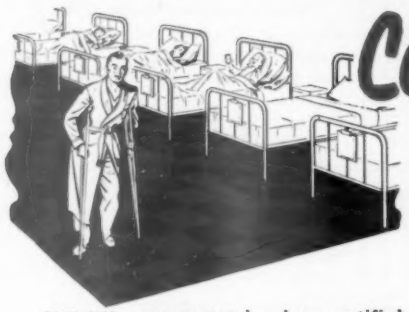

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THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

Accidental deaths in April numbered about the same as in April, 1950—6,800. There were decreases in home and motor-vehicle fatalities but an increase in deaths from occupational accidents.

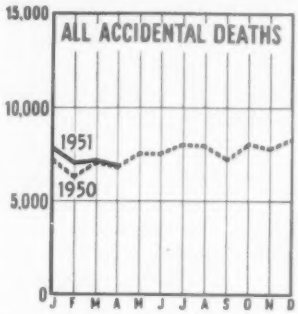
The four-month total was 28,700, an increase of 5 per cent over 27,400 last year. Most of the increase occurred in motor-vehicle fatalities, but deaths from home and occupational accidents also were more numerous. Deaths from public non-motor-vehicle accidents showed no change from 1950.

Motor-Vehicle Deaths

The motor-vehicle death toll in April was 2,560, a reduction of 3 per cent from April last year. This was the first decrease recorded in a year to year comparison over the past 16 months.

The death total for the four months was 10,460, an increase of 7 per cent over 9,810 in 1950. The death rate per 100,000,000 vehicle miles was 6.9, a 3 per cent decrease from the four-month rate of 7.1 in 1950.

Of the 46 states reporting for four months, 23 had fewer deaths than in 1950, 2 showed no change and 21 had more deaths. Reporting cities with populations over 10,000 had 10 per cent fewer deaths in April than a year ago, and approximately the same number in the four months of 1951 as in 1950.



	1951	1950	Change
April	6,800	6,800	0
Four Months	28,700	27,400	+5%

Regional changes from 1950 in the four-month death totals were:

North Atlantic	+ 6%
South Atlantic	+ 2%
North Central	+ 3%
South Central	0
Mountain	+11%
Pacific	+31%

Occupational Accidents

Deaths from occupational accidents totalled 1,200 in April, an increase of 9 per cent over last year. The four-month death total was 5,200, an increase of 400 deaths over 1950.

The April frequency rate for plants in community council interplant contests was 7.15, a 1 per cent reduction from last year. The April rate for plants in seven sectional contests conducted by the National Safety Council was 6.58, a decrease of 6 per cent from 1950. The four-month rate in the community council contests was 7.36—up 2 per cent; while in sectional contests it was 6.82, a decrease of 2 per cent.

Public Deaths

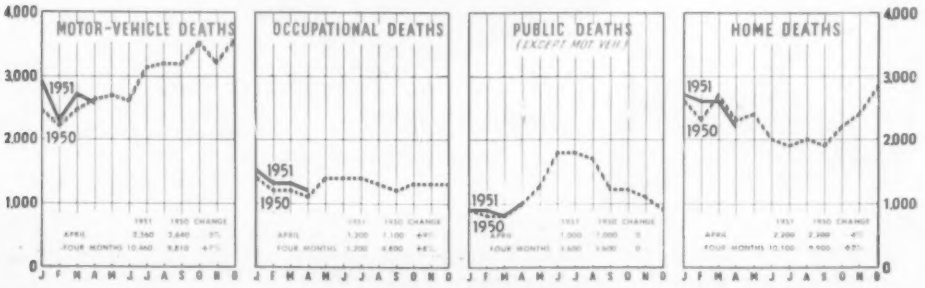
There were approximately 1,000 deaths from public non-motor-vehicle accidents in April, about the same number as occurred in April last year.

The four-month total also showed no change, totalling 3,600 in each year. Decreases in fatalities from transportation accidents, burns and drownings were offset by increases in fatalities from firearms accidents and falls. Deaths of children under 15 years and persons 45 to 64 years of age showed increases over last year; deaths of persons 15 to 44 years and 65 years and over showed decreases.

Home Deaths

Home accident fatalities in April numbered 2,200, a 4 per cent reduction from April last year.

The total for the four months was approximately 10,100, or 2 per cent more than the 1950 comparable total of 9,900. There were small decreases in deaths from poisonings, mechanical suffocation and falls and small increases in firearms accidents and other miscellaneous home accidents. Moderate reductions were reported for young people 15 to 24 years of age and persons 45 to 64 years old. The only increase was recorded for children 5 to 14 years. Deaths in other age brackets were about the same as last year.



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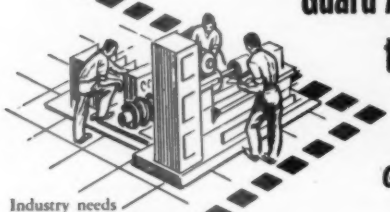

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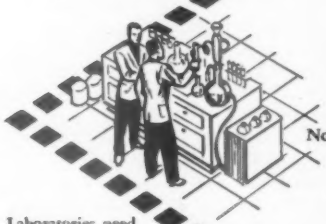

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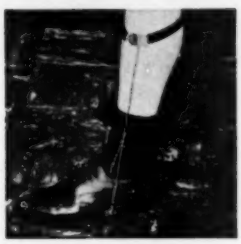

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Welding

—From page 31

should be cleaned with the proper size twist drill or a piece of soft brass or copper wire. An up-and-down motion is used, not a rotary motion. Worn or damaged equipment should not be used. Replacement should be made with standard parts, properly attached. Makeshift repairs are worse than none at all.

Equipment should be checked periodically and tested for leaks. Leaks in torch and regulator valves may sometimes be corrected by merely tightening the fittings; worn parts should be replaced. When in doubt, return the equipment to the supplier for check and replacement if necessary.

Worn and leaking hose and hose connections should be repaired. Defective hose should be cut out and a suitable splice made, using proper hose connections. Empty cylinders should be marked "Empty" or "MT" and removed from the welding area after all valves have been shut and valve-protection caps replaced.

It is good practice to identify the contents of a cylinder by the name of the gas, which should be shown clearly on the cylinder. The color or shape of a cylinder is not a positive means of identification.

Should there be occasion to stop work for a short period of time, as when changing welding rods or moving the work, both the oxygen and acetylene valves on the torch should be closed. The torch should be hung up or placed where it will not be damaged. When the welding is to be stopped for a considerable length of time, as at noon or when changing shifts, the entire setup should be shut down, including torch and cylinder valves in the proper order as given in manufacturer's instructions.

The welder should be properly attired for his work. Woolen clothing is preferred to cotton because it is not so readily ignited, and protects the welder from changes in temperature. Cotton clothing, if used, should be chemically treated to reduce its flammability. All outer clothing should be clean and free from grease and oil. Since sparks may lodge in rolled-up sleeves or pockets, sleeves should be rolled down to the wrist and kept buttoned. Pockets should be eliminated from the fronts of shirts and aprons. Similarly, trouser cuffs provide a trap for sparks; trousers should either be cuffless or turned up on the inside.

Low-cut shoes with unprotected tops should not be used, except for small bench operations. For very heavy operations safety shoes, with hard toes, should be worn. For overhead welding, or welding in very close quarters, ear protection should be provided. Hard hats or head protectors should be worn where there is exposure to sharp or falling objects.

Goggles must be worn during all welding operations, by helpers as well as welders. The types recommended for different operations are carefully described in Z49. All parts of goggles should be substantially constructed and able to withstand the heat of welding. Naturally, they must be flameproof, and of a material that will not readily corrode or irritate the skin.

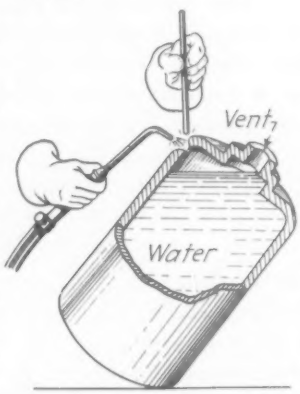


Fig. 6. Welding container which has held combustibles.

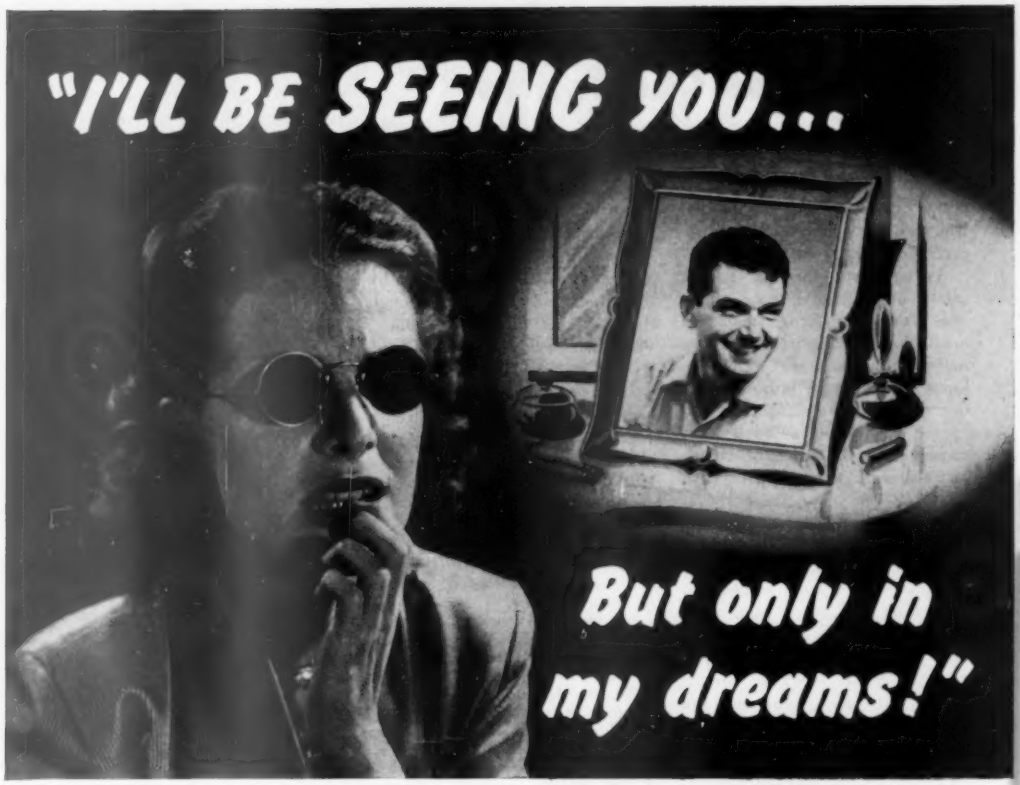
The shade of lens depends largely on the individual vision of the welder. It should be dark enough to prevent irritation to the eyes due to glare, yet light enough so that the welder can see what he is doing. A guide to the proper shade of lens to use for different operations will be found in Z49. Shade No. 5 is recommended for light oxygen-cutting and gas-welding. Shade No. 6 is recommended for oxygen-cutting and for medium gas-welding, and Shade No. 8 is recommended for heavy gas-welding. All lenses, regardless of shade, should be optically correct and kept clean.

All of the foregoing precautions and safety measures can easily be practiced in regular welding areas. However, when welding has to be done at other sites, as in making a repair, or as in field welding, these ideal conditions are not always possible and special precautions become necessary.

If repair welding has to be done in a shop, for example, the floor should be swept clean and all combustible material removed. Wooden floors should be thoroughly wetted down with water, or covered with damp sand, sheet metal, asbestos, or some similar material. Where there are floor openings or cracks that cannot be closed or covered, the area on the floor below, directly beneath where welding is to be done, should be checked to make sure that there are no highly combustible materials which may be ignited from welding sparks. Combustible material which cannot be moved should be completely covered with tarpaulin or asbestos sheets.

The welding equipment should be so located that it will not be exposed to damage. Hose should be neatly stacked and not left where it will encumber the welding operations, or where it can be struck by falling metal or run over by hand trucks, carts, or stepped on. Neatly stacked hose protects the hose from damage and

—To page 54



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A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

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For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

THIS picture story is a bitter one in the eyes of the younger workers in your plant.

New employees, usually inexperienced, represent fertile ground for seeds of incaution. To help prevent a rise in eye accidents, Bausch & Lomb suggests extra educational effort in their direction.

If the picture above stirred a spark of interest in you, it will in many of your employees. See it in poster form along with other graphic educational material designed to help make workers *want* to conform with your safety regulations. It's part of the *total* eye safety service of this great pioneer in industrial eyewear. Bausch & Lomb Optical Company, 601-8 St. Paul St., Rochester 2, N. Y.

BAUSCH & LOMB *Safety Eyewear*

Moral Challenge

(From page 17)

been seeking to be "exempt from hurt or injury?" Would Huckleberry Finn have cast off on that frail raft if he had wished to secure "freedom from danger?"

As we went through school, safety never had a good press. Was Fort Ticonderoga taken by men who prized their safety? Our national heroes never seemed to know the concept. "Is life so dear or peace (read "safety" for "peace") so sweet as to be purchased with the price of chains and slavery?" asked Patrick Henry.

This contempt for safety and security has been in the blood stream of our history and our literature for a long time. Beowulf said that every man must "drie his wyrd"—must prove his fate—and the clear meaning was that it could only be proved through struggle against odds and with complete disregard of personal safety. Of his fight with Grendel he says:

In the shades of darkness we'll spurn the sword
If he dares without weapon to do or die . . .
By deeds of daring I'll gain the gold
Or death in battle shall break your Lord!

All the stories of knights of old, of the Crusades and battles long ago, are filled with tales of desperate danger. With these our blood was stirred, our emotions raised to the highest pitch—and our values were formed.

You ask us now to be stirred by the idea of safety. Our heroes knew it not, or else they were craven cowards. Did the tragically few Marine fliers who flew off the carrier *Midway* to meet the oncoming Japanese fleet give a thought to safety? "They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety." So spake Ben Franklin and so run most of the allusions to safety in our literature and history. Its roots as an emotion are narrow and calculating: "Early and provident fear is the mother of safety," said Edmund Burke.

Even when it is recognized that safety is a value which comes as a fruit of maturity, it is said by Shakespeare to come only through risk: "Out of this nettle, danger, we pluck this flower, safety." Safety, I repeat, has had a bad press.

It is true that poets have written beautifully of safety. Perhaps your emotions were once stirred by Rupert Brooke, who wrote in 1914 of the only security which soldiers could find:

. . . . Who is so safe as we?
We have found safety with all things undying:
The winds, and morning, tears of men and mirth,
The deep night, and birds singing, and clouds flying
And sleep, and freedom, and the autumnal earth.
We have built a house that is not for Time's throwing.
We have gained a peace unshaken by pain forever.
War knows no power. Safe shall be my going,
Secretly armed against all death's endeavor;
Safe though all safety's lost; safe where men fall;
And if these poor limbs die, safest of all.

Our hearts have not been stirred by the idea of safety as we have grown up. In so far as our literature has taught us of safety, it has told us that safety is a pallid virtue, a calculated absence of risk and danger. This poem of Rupert Brooke's does not give us something to live by; rather, it assuages our grief at the contemplation of death.

Thus the cause of safety gets off to a bad start. "Out of the heart are the issues of life," says the Bible, and our hearts as we grew up have not been stirred by thoughts of safety. How would you move us now when you realize what the odds are?

Today we have a great safety movement in this country. Thousands of talented men and women give their services to the cause of safety through the National Safety Council, The Greater New York Safety Council, and similar groups throughout the country. Our schools and colleges now offer training courses on every level—28 separate courses are offered by New York University alone, most of them through our Center for Safety Education.

Where are the roots of this movement? It is not a movement or cause growing out of compassion alone, as is the Red Cross. Colleges of engineering do not train safety engineers solely through considerations of compassion and humanity. This is a movement in which the statistics of people and dollars involved are tremendous. This is a cause in which the stakes are big. How, then, will you stir our hearts in this cause? How will you move us as school children, adolescents, and adults to join the cause of safety?

Perhaps you expect us to be moved by the dollar figures involved? Certainly they are large enough to astound us. American industry, we read, loses 40 million man days annually through accidents. Occupational injuries cost the nation approximately $2,700,000 last year (*New York Times*, May 6, 1951).

It is reported that foot injuries alone in the last four years affected 820,328 workers, causing a loss of 37,735,088 work days, $122,228,872 in claim payments, and $54,141,648 additional in medical expenses. If dollar values will move us, these figures should be enough.

The insurance companies who issued these statistics say that "an educational program by the companies' safety engineers aimed at all levels of control from the individual worker to the foremen and managers of American business" will be the chief weapon to be used in accident prevention.

But in this educational program, whom do you expect to be

—*To page 72*

SUREFOOTED

as a fly *(almost)*

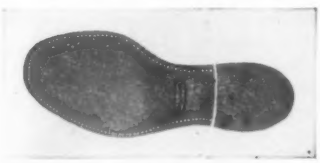
Each of the four soles shown, will REDUCE ACCIDENTS caused by slipping, and give extra long wear. Nearly all safety and work shoe manufacturers supply footwear with these soles.

NEO-CORD

A fine cord and neoprene sole that is resistant to oil, grease, gasoline, acids, caustics and heat. Cord construction gives NEO-CORDS a high non-slip efficiency for the life of the sole.

NEO-CORK

An outstanding cork and neoprene sole that gives long non-slip wear. NEO-CORKS resist gasoline, oil, grease, acids and caustics. They won't pick up metal chips, are waterproof and cushion the feet.



GRO-CORK

The finest cork and rubber sole. They are lightweight, waterproof and very slip-resistant. GRO-CORK soles won't pick up metal chips, they protect the feet from heat or cold, and are soft to walk on.

GRO-CORD

This remarkable sole, with its cord-on-end construction, affords non-slip footing and extra long wear. GRO-CORD soles should not be worn where grease, oil or gasoline saturates the footing.

Mr. SAFETY ENGINEER

Will you assist in a research program to obtain data on the proper sole to wear on a particular job? If so, let us know of any condition that is wrecking shoe soles or where footing is hazardous. We will cooperate with you, at no cost to your company, in determining what type of sole will be the safest and wear the longest.

GRO-CORD RUBBER CO.
LIMA, OHIO

Canadian Plant
GRO-CORD RUBBER CO. of CANADA LTD.
Tillsonburg, Ontario

Welding

—From page 50

makes it easier to draw additional lengths of hose as required.

Welding can be done safely in confined spaces, as in tanks or the holds of ships. In such cases it is mandatory that proper ventilation be provided either to completely ventilate the space, or by providing individual respiratory equipment to each welder. This is necessary even where there is no likelihood of the accumulation of toxic fumes, in order to prevent oxygen deficiency.

The gas cylinders should be left on the outside of the confined space, and, where possible, an attendant stationed on the outside to shut off the gas supply in an emergency.

When the welder must enter such confined spaces through a manhole or other small opening, some means must be provided for quickly removing him in case of emergency. Safety belts or life lines are convenient means for such purposes.

When it is necessary to stop work, the welder should not leave the confined space without shutting off his equipment at a point outside the confined area. He should preferably remove his torch, although this is not mandatory if the work is to be resumed shortly.

When welding is to be done on platforms, scaffolds, or runways at above-ground elevations, the welder should be protected from falling by means of railings, safety belts, life lines, or similar means.

In all the above cases fire-extinguishing equipment should be provided as necessary. Such equipment should include at least one fire extinguisher, properly filled, fire hose, and buckets. In some cases it may be desirable to provide fire watchers. Such fire watchers should be retained at the welding location for a sufficient length of time after the welding is completed to assure that no fire hazard exists. In any case, the welder, upon completion of his work, should mark his work or otherwise indicate that it is hot, to warn other workers.

Drums, barrels, tanks, and other containers that have held combustible gases or liquids should be completely cleaned and purged before any welding or cutting operations. Pipe lines should be disconnected or blanked to prevent the flow of any gas or liquid through the area to be welded or cut. All hollow cavities and containers should be vented to permit the escape of air or gases.

If possible, the previous contents of the container should be determined. This is not always possible, and in such cases all precautions should be taken. All containers, whether they contained grease, oil, gas, acid, tar, or any other similar substance, should be thoroughly cleaned. For very volatile substances steam or very hot water may be used. For other substances, such as heavy oils, a strong solution of caustic soda may be used. For other substances it is necessary to use a solvent.

Even though the container has been cleaned, the welding or cutting operation should be further safeguarded by filling the container with water, as shown in Fig. 12, to within a few inches of the point of welding or cutting. If filling with water is not practical an inert gas may be used.

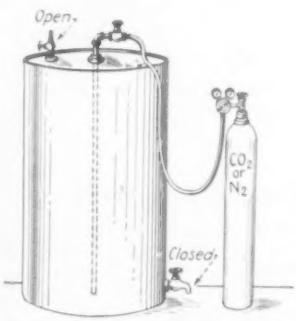


Fig. 7. Purging tank with carbon dioxide or nitrogen for welding or cutting.

Fig. 8. Well-designed hood for drawing off fumes.

Carbon dioxide and nitrogen are commonly used. *Carbon monoxide or the exhaust from an automobile engine should never be used.*

Where a gas is used for purging it is necessary to make sure that the proper concentration of gas is maintained. The carbon dioxide concentration should be at least 50 per cent in the air space inside the container, and 80 per cent or more in the presence of hydrogen or carbon monoxide. Required concentrations for nitrogen are at least 10 per cent higher than those for carbon dioxide. A typical setup for using carbon dioxide or nitrogen is illustrated in Fig. 13.

The subject of welding and cutting such containers is covered in greater detail in the AWS publication, *Recommended Procedure to be Followed in Preparing for Welding or Cutting Certain Types of Containers Which Have Held Combustibles.*

One other subject which should be mentioned briefly is the welding of materials which, when heated, give off toxic fumes. It should be noted that except when welding certain metals, such as lead and zinc and materials coated with these metals or cadmium, or mercury-bearing substances, there is no hazard of toxicity. When

—To page 62

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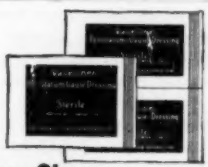
Cover damaged surface and area two inches beyond with two layers or more of petrolatum gauze dressing . . . then apply sterile dry bandage to keep clean and hold gently in place—using first-aid principles . . . have injury examined by a physician.



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Six envelopes to the illustrated carton.

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Green Cross News . . .

Activities of Local Safety Councils and Chapters

Compiled by TOM A. BURKE
Director of Local Safety Programs, Field Organization, NSC

Procedures Committee Meeting

The establishment of a training school for managers, preliminary plans for the annual manager's Conference in October, the one-fund community finance campaign movement and other subjects of pertinent interest were discussed at a meeting of the Committee on Procedures of the Conference of Local Safety Organizations on July 9 at the Sheraton Hotel, Chicago. A detailed progress report on community and state councils operating under the Conference Plan was made by Earl F. Campbell, director, Field Organization. Machinery was set in motion for the election of local council representatives to the NSC Board of Directors. Changes were recommended for the revision of rules for the inter-community industrial and fleet safety contests. Those in attendance were Walter D. Ladd, St. Joseph, Mo., chairman of the Procedures group; J. James Ashton, Wilmington; Harry H. Brainerd, Pittsburgh; George M. Burns, Kansas City; Estel Hack, Louisville; Iver Larson, San Francisco; Harold Lillie, Lansing; and Dr. B. L. Corbett, Milwaukee.

Special Achievement Awards

The Field Organization will again conduct the annual Special Achievement Awards Contest for local chapters and chartered safety councils. Announcements with rules and full information were sent to the chapter group recently. As in the past awards will be considered for any successful community safety project, program, activity or monthly periodical (except in the field of home safety) that is sound, has originality and shows impact. Statistical results will be given full consideration.

The contest year runs from June 1, 1950 through May 31, 1951 and all entries must be mailed to Field Organization, NSC on or before August 1. Home safety awards will not be considered since the Home Safety Division is conducting its own contest in its field. The judges are E. Ross Farra, manager Greater Grand Rapids Safety Council, chairman, with Dr. B. L. Corbett, director, Milwaukee Safety Commission and Joseph F. Stech, manager, Greater Chicago Safety Council.

Nation-Wide Fire Prevention

Under the auspices of the International Association of Fire Chiefs, through the National Fire Prevention Committee, under the chairmanship of Jay W. Stevens of San Francisco, a nation-wide program was launched on June 1 to carry the message of fire prevention to every home in America. The fire chiefs of some three thousand cities and towns in North America are cooperating and the members of the fire departments are carrying the message to the homes. It is expected that every home in the country will be visited and the ultimate objective is to save 4000 children from death by fire. Ned H. Dearborn is a member of the committee that is undertaking this huge project.

Home Safety Merit Awards

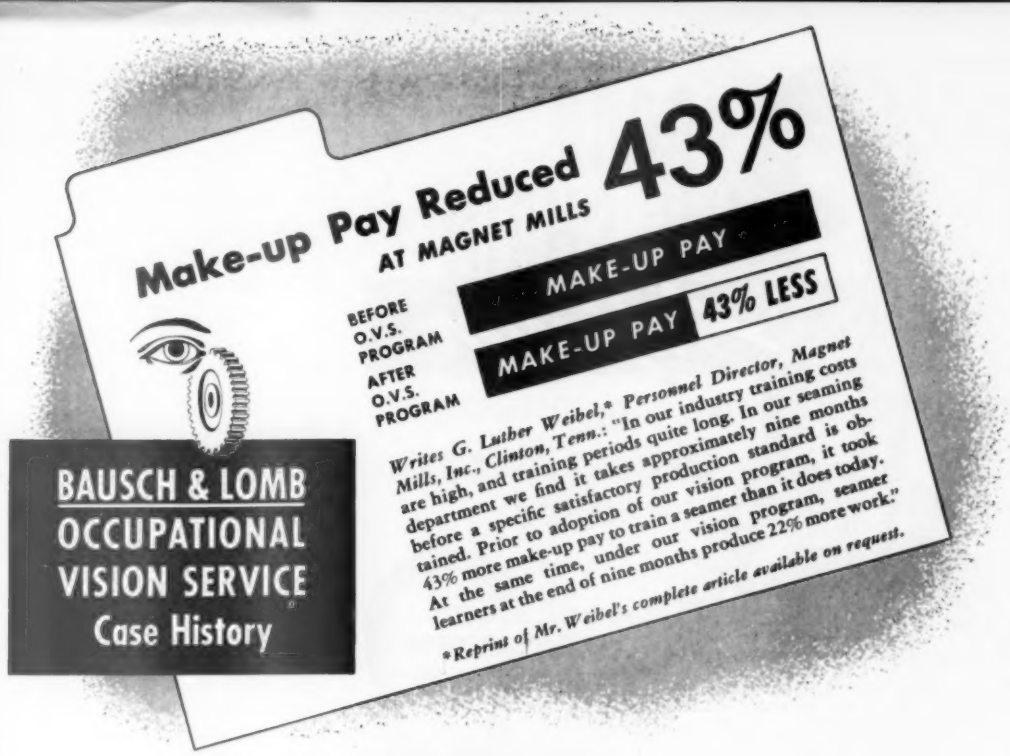
Announcement was made recently of new home safety merit awards to be given for exceptional service to home safety education by local safety councils or other interested groups. The awards will not be competitive and all organizations, large or small, having a home accident prevention program are invited to take part. Full information and entry blanks can be obtained by writing the NSC Home Safety Division.

State Conference Awards

At the recent Michigan Safety Conference held in Grand Rapids, R. W. Richards of Lansing, president of the organization, presented "Conference President's Awards" to P. C. Hunter, safety director, Motor Wheel Corporation, of Lansing and E. Ross Farra, manager of the Greater Grand Rapids Safety Council. Following these presentations Kenneth Thompson, Conference vice-president, of Michigan Bell Telephone Company, Detroit, surprised Richards by honoring him with a special certificate from the officers. Total registration for the three day meeting came to 1,812, a 30 per cent increase over the 1950 session. Most of the registrants came from Michigan industrial plants.

Industrial Progress

A recent report from the Hampden County Accident Prevention Council indicates a general expansion of activities, particularly in the industrial field. High spots of the Industrial Division include an intensive supervisors' training program held jointly with the Springfield Association at Springfield College, attended by 400; semi-annual program for employees of B & M Railroad arranged by Manager Ralph Ellis of the Council and his staff in cooperation with company officials; and a healthy growth in the Council's inter-plant contest which


Make-up Pay Reduced 43%
AT MAGNET MILLS
BEFORE O.V.S. PROGRAM
MAKE-UP PAY
AFTER O.V.S. PROGRAM
MAKE-UP PAY 43% LESS
Writes G. Luther Weibel,* Personnel Director, Magnet Mills, Inc., Clinton, Tenn.: "In our industry training costs are high, and training periods quite long. In our seaming department we find it takes approximately nine months before a specific satisfactory production standard is obtained. Prior to adoption of our vision program, it took 43% more make-up pay to train a seamer than it does today. At the same time, under our vision program, seamer learners at the end of nine months produce 22% more work."
*Reprint of Mr. Weibel's complete article available on request.
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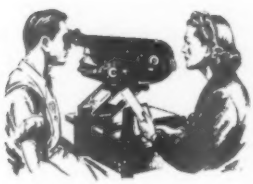
Case History

A PROVED METHOD
To help your plant make money 9 Ways!



It's a matter of record that 4 of every ten industrial workers are visually unqualified for satisfactory performance on their jobs (established by the records of millions of visual performance tests of industrial workers in more than 4,000 different job categories). When visual skills are correlated to job requirements, working efficiency is notably increased. The Bausch & Lomb Occupational Vision Service is a scientific method for meeting this problem of "Eyes for the Job." *Employee participation is voluntary... and workers like the program.* Benefits which accrue in plants using O.V.S. (benefits which can accrue in *your plant,* too) include:

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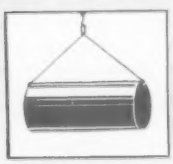

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In Business for Your Safety

now has 91 firms with 43,000 employees participating. Five hundred persons attended the annual banquet recently and 65 firms in Springfield and the county area were represented. S. Bruce Black, president Liberty Mutual Insurance Company and a member of the NSC Board of Trustees, was the speaker.

Puckett's New Post

Nolen E. Puckett, executive director of the Tennessee Safety Council, has accepted an important post in the state's civil defense program. In addition to his regular Council administrative duties he will serve as chief of transportation in the Civil Defense Health and Medical Services Division. Announcement of the appointment was made by Brigadier General Claud M. Adams, State Civil Defense director.

Pointed Emphasis

An industrial symposium planned to place special safety emphasis on the most important industrial operations of the state, drew a large audience of interested safety enthusiasts at the Third Annual Governor's State Safety Conference in Little Rock, Ark., on June 26. Authoritative speakers discussed safety problems and their solution in the chemical, bauxite, sawmill, mining and utilities fields. Your reporter opened the session with a talk on "Basic Principles of Industrial Safety." He and Don Hill, Southern Field Representative, conducted a workshop for local safety leaders the following day, devoted mainly to problems of council financing, locally and at the state level.

Managers Promote Exhibit

Chapter and council managers in Seattle, Portland, Oakland, San Francisco, Los Angeles, Denver and other places gave full cooperation recently in promoting interest in NSC's new traveling exhibit of materials and services. The exhibit was taken on its first trip through the West Coast states in charge of Charles T. Wesson of the Membership Department and in most cities was shown under the joint sponsorship of NSC and the local group. The new presentation shows every item of techni-

cal, administrative, supervisory and educational material, including visual aids, needed for complete programs in all fields of safety.

Rex Cleveland Honored

Reginald M. Cleveland, prominent member of the staff of the *New York Times* and a member of the board of directors of the Greater New York Safety Council was recently elected president of the American Museum of Safety. Cleveland was a feature writer and department editor on the "Times" for many years and in recent years has held an important post in the business division. He has been closely identified with safety work in the Greater New York area. The trustees of the American Museum include E. Roland Harriman, Howard Coonley, Ned H. Dearborn, W. A. Irvin and Wallace J. Falvey, all of whom are members of the NSC Board of Trustees.

Syracuse Success

A registration of almost 2500 persons with a total attendance of nearly 4000 at all meetings of the three-day Regional Conference held recently in Syracuse, indicated a healthy growth over all previous sessions. Five hundred persons heard Ned H. Dearborn speak at the Annual Banquet and 900 supervisors and their friends attended the "Foreman's Smoker." The Central New York Conference is held in Syracuse and Buffalo on alternate years. Walter L. Fox, manager of the Syracuse Safety Council of the Chamber of Commerce, was general director of the 1951 Conference.

N. Y. Award Dinner

The Twenty-Sixth Annual Award Dinner of the Associated Industries of New York State, Inc., jointly sponsored with the Greater New York Safety Council, was held at Hotel New Yorker May 2 and featured an enlightening off-the-record address on the war-time atom bomb project by Lieut. General Leslie R. Groves, U.S.C., Ret. More than 100 winners in the industrial contest received awards.

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FOR FLAMMABLE LIQUID, GAS AND ELECTRICAL FIRES

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DRY CHEMICAL
FIRE EXTINGUISHING EQUIPMENT

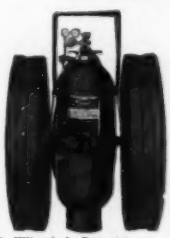
You, who have seen or used an Ansul Dry Chemical Extinguisher at a fire demonstration or on an actual fire, quickly recognized its superior fire-fighting capabilities. Further investigation proves that Ansul "Water-tight Construction" provides greater dependability under severe exposure conditions.

Ansul Hand Portable Models — 4, 4-B, 20-B and 30-B.

Fire Chiefs, insurance inspectors, safety engineers, etc. recognize Ansul as the leader in the dry chemical extinguisher field. Ansul Fire Extinguishing Equipment and *"PLUS-FIFTY"* Dry Chemical have set unparalleled standards of quality for the fire extinguisher industry.

You get *complete* dry chemical fire protection only from Ansul. There is an Ansul Dry Chemical Fire Extinguisher of the proper size for almost every flammable liquid, gas and electrical fire hazard.

Safeguard your plant and irreplaceable equipment with the *BEST* fire extinguishing equipment available. Protect them with ANSUL EXTINGUISHERS.



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- Special packings in Nozzle and other parts exclude water.
- Corrosion resistant construction throughout.
- Easy on-the-spot Recharging (No tools needed).
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- Ansul *"PLUS-FIFTY"*® Dry Chemical used exclusively.
- Field tested by thousands of satisfied customers.
- Ansul LT Models are the only dry chemical extinguishers listed by U.L. for operation at –65° F.

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Send for File No. 716. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

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Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 300,000 man-hours, without a disabling (lost-time) injury are invited.

Southern Natural Gas Co.
Atlanta, Ga. — 1,000,000 man-hours as of June 13, 1951; continuing.

United States Steel Co.
South Works, Blast Furnace Division — January 17, 1951 to June 17, 1951; 1,000,000 man-hours; continuing.

Lukens Steel Co.
Lukenweld Division, Coatesville, Pa. — 359 days; 600,000 man-hours.

Owens-Illinois Glass Co.
Huntington, W. Va. — July 3, 1949 to May 13, 1951; 4,591,700 man-hours.

Shell Development Co.
Emeryville, Calif — 224 days; 1,280,000 man-hours.

Tennessee Eastman Co.
Koda Division, Kingsport, Tenn.—2,783,137 man-hours as of May 22, 1951; continuing.

Tenite Division, Kingsport, Tenn.—1,764,587 man-hours as of May 22, 1951; continuing.

Power and Service Division, Kingsport, Tenn.—1,328,906 man-hours as of May 22, 1951; continuing.

Cellulose Esters Division, Kingsport, Tenn. — 655,603 man-hours as of May 22, 1951; continuing.

Acid Division, Kingsport, Tenn. 612,753 man-hours as of May 22, 1951; continuing.

E. I. du Pont de Nemours & Co.
Spruance Rayon Plant — 17,222,643 man-hours as of April 30, 1951; continuing.

Grasselli Acid Mfg. Works, Philadelphia, Pa.—6,111,226 man-hours as of April 30, 1951; continuing.

Findlay Works, Remington Arms Co.—2,535,078 man-hours as of April 30, 1951; continuing.

Republic Steel Corp.
Order and Shipping Dept., Youngstown District, Youngstown, Ohio — 2,340,877 man-hours as of May 27, 1951; continuing.

Combustion Engineering-Superheater, Inc.
No. 2 Heavy Sheet Metal Plant, Chattanooga, Tenn. — 1,234,461 man-hours as of May 13, 1951; continuing.

Consolidated Paper Corp., Ltd.
Laurentide Division, Grand-'Mere, Quebec — September 13, 1950 to May 31, 1951; 1,439,985 man-hours.

Standard Oil Co.
Sohio Petroleum Co., Latonia Refinery, Covington, Ky. — December 18, 1947 to May 18, 1951; 1,841,000 man-hours; continuing.

Standard Oil Co. (Ohio), Lima Refinery, Lima, Ohio—November 11, 1950 to May 15, 1951; 615,581 man-hours; continuing.

National Distillers Products Corp.
K. D. & W. Plant, Louisville, Ky.—October 6, 1949 to May 20, 1951; 2,324,924 man-hours; continuing.

Louisville Division, Louisville, Ky.—February 17, 1950 to March 3, 1951; 3,027,740 man-hours.

Congoleum-Nairn, Inc.
Marcus Hook, Pa. Plant—August 8, 1950 to April 11, 1951; 2,006,799 man-hours.

Salem, N. J. Plant — 1,000,551 man-hours as of May 24, 1951; continuing.

Procter & Gamble, Inc.
Dallas Factory, Dallas, Texas—May 1, 1950 to April 21, 1951; 1,341,000 man-hours.

American Cyanamid Co.
American Cyanamid Co., Calco Chemical Division, Willow Island Plant—March 21, 1950 to May 24, 1951; 1,060,000 man-hours.

North American Cyanamid Ltd., Ingersoll Quarry — July 11, 1947 to May 14, 1951; 660,000 man-hours.

Industrial Health Group To Meet in Houston

The Fourth Annual Gulf Coast Regional Conference on Industrial Health will be held September 27 through 29. Sessions will be in the Rice Hotel in Houston.

Speakers are being contacted to discuss labor management and industrial health, industrial hygiene and the part industrial health will play in the over-all civilian defense organization.

Dr. Charles Williams of the Liberty Mutual Insurance Companies in Boston will discuss "Industrial Hygiene Aspects of Noise" at the conference's luncheon on September 27.

Sessions on industrial health and on industrial wastes and stream pollution will be held concurrently on September 28, with the September 29 sessions devoted to industrial nursing subjects.

An increasing number of top business and industrial executives from throughout the Southwest have been attending the conference since its start in 1948. In 1950, more than 400 were present.

AGA Safety Merit Award Presented

The American Gas Association's safety merit award has been presented to the Toledo District of the Ohio Fuel Gas Company in recognition of 2,000,000 consecutive hours without time lost due to an accident.

R. C. Kadel, Columbus, Ohio Fuel safety director, made the award on behalf of the AGA at a safety appreciation dinner honoring employees. It was accepted by I. A. Ludwig, vice-president and Toledo District manager.

P. A. Alberty, Columbus, retired, former safety director and secretary of the firm, was the principal speaker. He traced the modern safety history of the company from 1928, when deaths averaged six a year, to the present time, when the company has the best safety record in the nation in comparison with similar organizations.

The last serious accident which necessitated an employee taking time off his job occurred March 11, 1948, according to Mr. Ludwig. A similar record of 2,000,000 hours without serious injury was achieved during the years 1938, 1939 and 1940 in the Toledo district.

More than 300 employees were guests of the company at the meeting. Each was presented a suitably inscribed metal desk pad in which to record telephone numbers.

the SAF-I-TRIPLETS

these three models offer full protection from all impact, chemical and dust hazards.

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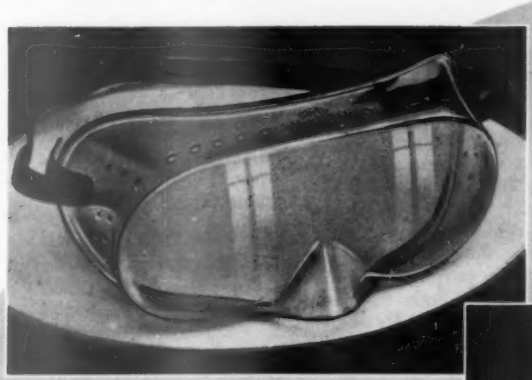

SAF-I-SHIELD—Rugged one piece design—Full protection from all impact hazards—One size fits everyone—Low Cost—Genuine Comfort.

SAF-I-SPEC—Low cost replaceable one-piece lens can be quickly and easily changed. Lens interchangeable with SAF-I-DUO. Snug fitting comfortable temples.

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by SID HIX
UH... AH... WHERE DO I GO TO TURN IN THESE DEFECTIVE TOOLS, SIR?
I'VE FILLED SOME CARELESS HUNT AT THE PLANT TODAY I CAN SEE IT ALL OVER YOUR FACE!
LOOK, JOE, I CAN OIL THIS MACHINE WITHOUT TURNING IT OFF!
THAT'S WONDERFUL! BUT, I'D BETTER GIVE YOU THE ADDRESS OF THE A-1 ARTIFICIAL LIMB CO.

When the doctor checks you over and says you're as sound as a dollar, you can bank on it you're only 50 per cent there.

Welding

—*From page 54*

welding the metals mentioned above, or other metals coated with these metals, local exhaust ventilation, by means of hoods or ducts located directly at the welding station and as near as practicable to the work, must be used to provide the air changes prescribed in Z49. Individual air-supplied respirators may be provided as an alternative. If welding of such metals is done infrequently it may be most convenient to perform the welding outdoors, in which case no special ventilation or respiratory equipment is necessary.

Welding fluxes in general are not toxic; an exception is fluoride-bearing fluxes. Such fluxes are more commonly used for brazing than for gas welding. In addition to the need for removing all toxic fumes generated by such fluxes by means of positive ventilation, precautions must be taken to prevent quantities of the flux itself from being taken internally. Observance of usual cleanliness requirements, such as washing the hands before eating, will eliminate all possible hazards from this source. The American Welding Society has formulated a standard precautionary wording for inclusion on the labels of fluoride-bearing fluxes, which has generally been adopted by manufacturers.

Announce Scholarship in Safety Engineering

A new scholarship for candidates for the master of science degree in safety engineering at Illinois Institute of Technology has been announced by the James S. Kemper Foundation. The scholarship will cover tuition, fees and books in the amount of $375 per semester.

The foundation was established in 1942 by insurance companies in the group managed by James S. Kemper of Chicago. One of its purposes is to enable worthy persons to take advantage of educational opportunities particularly helpful to an insurance career, Kennicott said. In addition to the scholarship just announced, the foundation also supports scholarships in fire protection engineering at Illinois Institute of Technology, in insurance administration at Ripon college and in actuarial science at the University of Manitoba, and a fellowship in industrial hygiene engineering at the Harvard university school of public health.

Illinois Institute of Technology recently announced a new program leading to the degree of master of science in safety engineering, beginning in September, 1951.

Gas Equipment Makers Adopt Standards Code

Designers and builders of more than 25,000 different types of gas equipment for industrial use have announced voluntary adoption of a "code of ethics" governing the standards of performance and safety of such equipment.

Members of the division, who make gas equipment used in automotive, metals, textile and other essential production of the nation have agreed to self-policing on the following terms:

Product design based on sound engineering principles and proven research, and employment of superior workmanship and materials.

Assignment of accurate and dependable input and output rating to all products.

Design and construction with a view to satisfactory product performance over a reasonable expected lifetime.

Readiness to cooperate in the preparation and application of official standards, when and if promulgated by the American Standards Association.

Application of highest standards of safety and durability to the selection of controls and accessories used in finished products.

Furnishing of carefully prepared directions, wherever practicable, to assist installers and users.

STONEHOUSE SIGNS
For Accident Prevention

For those who may not *Remember*

MEN OFTEN FORGET to be careful. Forgetting and being careless lead to many accidents.

So it's well to remind workers that thinking and working safely not only produces better work but helps prevent accidents.

Stonehouse "Reminder" signs do much to educate and remind workers—to help them guard against unsafe practices, thoughtlessness and forgetting to be careful.

STONEHOUSE steel SIGNS
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Stonehouse complete Catalog No. 9 contains many hundreds of different Accident Prevention Signs covering hazards in industry. Free copy of catalog on request.

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The Safety Library

Books, Pamphlets and Periodicals of Interest to Safety Men

BOOKS AND PAMPHLETS

Nuclear Technology

Industrial and Safety Problems of Nuclear Technology. Edited by Morris H. Shamos and Sidney G. Roth. Published by Harper & Bros., New York, 1950. XIII plus 368 pages. $4.00.

This book represents the most important contributions prepared for an intensive three-day conference on safety problems in nuclear technology by the New York University Division of General Education and the Atomic Energy Commission. The work is designed for people having no detailed information on nuclear technological problems and can be read quite easily by any intelligent layman.

With an introduction by Gordon Dean on the problems and dangers inherent in the atomic energy development the volume first indicates the high points of industrial and research applications of the non-military aspect of atomic energy with 11 top flight authors contributing to these sections.

In addition to the general interest this section will be of particular interest to the safety man in pointing out the places where use of radio-active isotopes may be expected both now and for some time in the future. This section also includes some information on the proper design and instrumentation of radio chemical laboratories and of handling of isotopes in tracer techniques. No attempt is made to go into detail design of these things but enough guide posts are set up to permit an intelligent study of the problem when necessary.

The other major sections of the text are concerned with the health and safety problems and procedures in handling isotopes. This section considers both the protection of personnel working with isotopes in plants, the protection of the general public living in the vicinity of these plants and the general public health considerations in handling and treating radio-active wastes.

From the layman's point of view probably one of the greatest attractions is that none of the seven authors concerned with these sections attempts to treat his material as a closed subject. In each instance it is clearly indicated in what areas of knowledge there is general agreement as to facts and procedures and in what areas there is a deficiency of knowledge which should incline one to more than ordinary caution in handling the materials.

As one of the greatest unsolved problems of the handling of radio-active materials the discussion of waste disposal is extremely good.

There is also a discussion both in the body of the book and in a panel in one of the appendices upon the effect which the atomic energy program is having and may be expected to have in the future upon workmen's compensation insurance.

The whole volume is exceptionally readable and should be an extremely valuable reference text for anyone contemplating the use of radioactive materials. It can also be highly recommended as general reading for any high school student or adult.

F. A. Van Atta

Health

The Human Side of Industry. Published by Industrial Hygiene Foundation, 4400 Fifth Avenue, Pittsburgh 13, Pa. 1951. 102 p. Price $2.00 to non-members. (Transactions Bulletin No. 15-1950.)

Mines

Analysis of Haulage Fatalities in Bituminous Coal Mines in 1950. Published by U. S. Bureau of Mines. 1951. 28 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa. Free. (Information Circular 7604.)

Industrial Hygiene Survey, Coal Mining Industry, State of Washington. Published by Department of Health, Smith Tower, Seattle 4, Wash. 1951. 43 p. Free. (I H Bulletin No. 4.)

The Short-Circuiting Contractors as an Electrical Protective Device for Coal Mine Service. Published by U. S. Bureau of Mines. 1951. 10 p. Available from the Bureau, Publications Section, 4800 Forbes Street, Pittsburgh 13, Pa. Free. (Report of Investigation 4759.)

Use of Visual Aids in the Morenci Branch Safety Program, Phelps Dodge Corporation, Morenci, Arizona. Published by U. S. Bureau of Mines. 1951. 6 p. Available from the Bureau, Publications Section, 4800 Forbes Street, Pittsburgh 13, Pa. Free. (Information Circular 7598.)

Why Men Were Killed at Pennsylvania Anthracite Mines in 1950. Published by U. S. Bureau of Mines. 1951. 13 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa. Free. (Information Circular 7609.)

Standards

Woodworking Machinery. A Comparison of State Safety Codes with A. S. A. Code 01.1. Published by U. S. Bureau of Labor Standards, Washington, D.C. 1950. 27 p. Free.

MAGAZINE ARTICLES

Accident Statistics

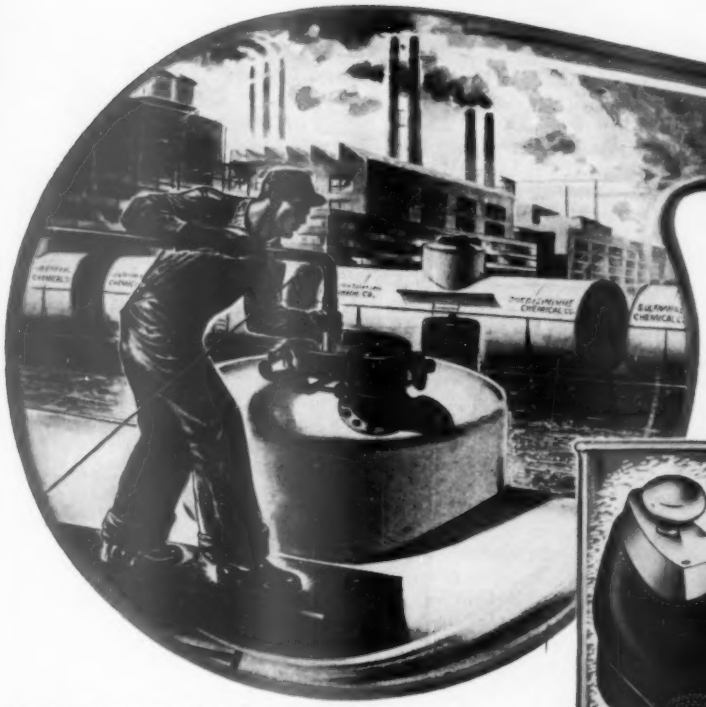
How Accident Control Charts Can Help Your Safety Record. By T. T. Leadbeater. (In Factory Management and Maintenance, June 1951. p. 92.)

Alcohol

Alcoholism in Industry. By George N. Thompson. (In Industrial Medicine and Surgery, June 1951. p. 273.)

Beryllium

Epidemology of Beryllium Intoxication. By James H. Sterner



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CHEMICAL SAFETY SHOES

EVER DEVELOPED FOR THE CHEMICAL INDUSTRIES!

Completely stitched with DUPONT THREAD OF **DACRON*** (Praised so highly in recent edition of LIFE Magazine). For added service, the vamp lining is made of FABRIC OF **DACRON**. This, plus the RICO plastic TOLEX lining beneath the toe caps virtually eliminates worn-out linings!

IMPERVIOUS TO FOOT ACIDS AND PERSPIRATION CUTS DOWN SOCK WEAR

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Severe laboratory and plant tests prove that RICO *CHEM* SHOES are really the answer to the Chemical Industry's shoe problems. • After being exposed for 64 days in such chemicals as HYDROCHLORIC, SULPHURIC and NITRIC ACIDS, BLEACHES and CAUSTICS, Thread of **DACRON** showed practically no loss in strength, whereas conventional thread showed as much as 68% original strength lost!

CHEM SHOE NO. S-435

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EXTRA FEATURES!

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- THICKER 18 IRON DUPONT PURE NEOPRENE SOLES GIVE ADDED WEAR AND CORDED NEOPRENE HEELS PREVENT SLIPPAGE.
- RAWHIDE LACES PROVIDE LONGER SERVICE ELIMINATING FREQUENT REPLACEMENT.

*DUPONT TRADEMARK FOR POLYESTER FIBER

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Dept. CN, 3301 ARCH ST. • PHILADELPHIA 4, PA.

and Merril Eisenbud. (In Industrial Health Monthly. p. 104.)

Cadmium

Cadmium Poisoning. By Lawrence H. Cotter and B. H. Cotter. (In A.M.A. Archives of Industrial Hygiene and Occupational Medicine, May 1951. p. 495.)

Chemicals

Industrial Intoxication Due to Pentachlorophenol. By E. W. Baade and H. J. Bauer. (In Industrial Medicine and Surgery, June 1951. p. 286.)

A Toxicological Study of Some Polypropylene (Polyoxypropylene) Glycols. By C. Boyd Shaffer and others. (In A.M.A. Archives of Industrial Hygiene and Occupational Medicine, May 1951. p. 448.)

Civil Defense

Cooperation of Utilities with Civil Defense. By A. R. Nelson. (In Edison Electric Institute, June 1951. p. 192.)

Radiological Aspects of Civil Defense. (In The Journal of the American Medical Association, June 2, 1951. p. 465.)

Three Factors Govern Success in Controlling Wartime Fires. By G. Eastham. (In Fire Engineering, June 1951. p. 436.)

Color

A Guide for Measurement of Color. By David L. MacAdam. (In Standardization, June 1951. p. 176.)

Commercial Drivers

Give Your Drivers Training in First Aid. By Edgar G. Quesnel. (In Fleet Owner, June 1951. p. 48.)

Good Drivers Aren't Born — They Are Made. By Ralph H. Snyder. (In Mass Transportation, June 1951. p. 41.)

Eyes

Industrial Visual Screening. By W. T. Cameron. (In American Journal of Optometry and Archives of American Academy of Optometry, June 1951. p. 309.)

Health

Activities of State and Local Agencies in Industrial Health. By Victoria M. Trasko. (In A.M.A. Archives of Industrial Hygiene and Occupational Medicine, May 1951. p. 483.)

Dermatitis from Local Anesthetics. By C. Guy Lane and Ralph Luikart H. (In Journal of the American Medical Association, June 23, 1951. p. 717.)

Fatalities from Hydrogen Sulfide in Wells. By John M. McDonald and A. P. McIntosh. (In A.M.A. Archives of Industrial Hygiene and Occupational Medicine, May 1951. p. 445.)

Industrial Nursing in a Small Plant. By Lois Heagler. (In American Journal of Nursing.)

Longevity of the Industrial Worker. By Louis I. Dublin. (In American Journal of Public Health, June 1951. p. 697.)

New Patterns in Industrial Health and Medical Care Programs in California. By E. Richard Weinerman and others. (In American Journal of Public Health, June 1951. p. 703.)

Management

Management's Viewpoint in Safety. By W. S. Row. (In Canadian Mining Journal, June 1951. p. 75.)

Marine Industry

Accident Prevention in Connection with Loading and Discharging of Cargo. By Joseph H. Travers. (In Proceedings of the Merchant Marine Council, June 1951. p. 130.)

Noise

60% Cut in Machine Noise. By Wentworth D. Boynton. (In Factory Management and Maintenance, June 1951. p. 113.)

Public Utilities

Trends in Utility Accident Prevention Throughout the United States. By W. T. Rogers. (In Edison Electric Institute Bulletin, May 1951. p. 153.)

Radiation

Radio-Activities and Industrial Safety at Harwell. (In Industrial Welfare and Personnel Management, May-June 1951. p. 63.)

Secondary Radiation Limits in Photofluorography. By William W. Van Allen. (In Public Health Reports, June 1, 1951. p. 712.)

Waste Disposal

How to Ged Rid of Toxic Industrial Wastes. (In Engineering News-Record, June 14, 1951. p. 30.)

Got a War Trophy? —De-activate It

Maj. Gen. E. P. Parker, provost marshall general of the Army, urges all veterans to have their wartime souvenirs de-activated at once, because they are becoming a favorite weapon of criminals and subversive agents. In addition, he said, thousands of persons have been killed or permanently injured by the captured souvenirs.

Speaking on the Borden Company's National Broadcasting Company-TV show, "Treasury Men in Action," General Parker cautioned that such trophies as firearms, hand grenades and even land mines "are dangerous to the veteran, to his family and to the community."

"The American people," General Parker explained, "have always believed that men who have fought for their country have won the privilege of bringing home certain captured enemy trophies. We believe it is right for them to keep and cherish these things as mementos of honorable service. But we must not forget that many war souvenirs, however innocent appearing, are lethal weapons — weapons designed to kill."

MAJ. GEN. E. P. PARKER, provost general of the U. S. Army, shows Willis H. Gurley, vice-president, Borden Company, how to de-activate a submachine gun.

KLEAR-VU SAFETY ACCESSORIES

mean Safety First—Last and Always

PERFECT RESISTANCE TO DUST, FLAME, ACID, OIL AND WATER!

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STYLED ATTRACTIVELY, LIGHT IN WEIGHT, EASILY CLEANED!

Thousands of leading safety engineers . . . men who know that minimum risk means maximum production . . . insist *only* on Klear-Vu Safety Caps, Safety Aprons and Safety Arm Guards to protect workers.

Maintain Peak Production—Protect ***Your*** Workers — Boost Morale — Reduce Overhead —

WRITE TODAY FOR SAMPLES AND PRICES!

KLEAR-VU PRODUCTS CO., INC. LINCOLN BOULEVARD, MIDDLESEX, N. J.

Safety on the Hilltops

(From page 23)

the fundamentals of concrete design, quality control, field testing procedures, reinforcing methods and practices, detailed study of tower specifications, duties and responsibilities of inspectors, routines and reports and safety practices and their enforcement.

It is significant that, despite the urgency and intensiveness of the training program, one full day—20 per cent of the scheduled classroom time—was devoted to safe working practices. It is also interesting to note that, as the final responsibility for job safety was the contractor's, in most situations the telephone personnel could only make suggestions and recommendations. There was not a single instance, however, where the suggestions were not welcomed and put into effect, even in some cases which the contractor might otherwise have accepted as normal job hazards.

As in the case of the field crews, all of the men were being assigned to jobs involving physical activities to which they were by no means accustomed, the main hurdle being the requirement for climbing ladders to considerable heights. Each man, therefore, was given a careful examination, with special attention to the circulatory and respiratory systems. Men who wore bi-focal lenses were not assigned to the classes, but vision which could be corrected with single lenses was considered satisfactory.

The contractors were faced with an even more difficult training problem since the jobs were scattered and mostly in remote rural areas. Consequently, crews had to be largely reorganized for each job and new men trained. The men were, of course, taught only their particular job operations, on an on-the-job basis, but, since many of the activities required close coordination, the training had to be complete and effective. In connection with certain operations the men were actually trained as teams and they worked together throughout a particular job. Physical examinations of contractors' personnel were handled by their insurance companies.

Actual construction activities started very soon after the training classes were completed. At the option of the contractors some of the structures were erected by the fixed-form method and others by the clip-form method and the latter offered many problems in safety. In the fixed-form method the concrete is poured into forms in a series of "lifts," the forms being raised to successively higher levels as soon as the lift previously poured has set. Access and working areas are carried upward by scaffolding as the work progresses.

Construction by the slip-form method is based on the use of a concrete form about four feet high and constructed in the form of a band of the shape of the building contour. It is similar in appearance to a usual concrete form, but has a platform built across the entire center area which becomes the working platform. The entire assembly is supported on jack rods which are placed about the circumference of the building on 5-foot centers. The assembly, form and platform, is raised by simultaneous operation of all the jacks.

"Next time get a few facts before you promise we can solve ANY temperature control problem." (Courtesy Wheelco Instruments Company.)

As concrete is poured, the assembly is gradually raised, at a rate of about seven inches per hour, and, by the time the concrete is exposed at the bottom of the form, it has set sufficiently to support the weight above it. Once concrete pouring has started, it must be continued without interruption despite weather, time or date, until the top is reached, thereby producing a monolithic structure. At the same time that concrete is being poured, inspection and finishing operations are carried out by men working on scaffolds suspended from the main working deck on both interior and exterior surfaces.

Accident prevention planning was adapted to the specific requirements of each type of construction, some of the procedures applying only to one method, but others applying to either. Most of them had to do with job operations directly but one of the earliest, and somewhat unanticipated problems to come up, was the control of visitors — authorized and plain sightseers.

The construction activities proved to be tremendously attractive both to Bell System employees and to the general public in the rural areas in which most of the projects were built, and a traffic problem of major proportions, which created accident possibilities from a number of sources, soon developed.

Over weekends the construction sites became the mecca for whole families who spent hours watching the work. This traffic, added to the construction traffic over rural roads and temporary access roads, required the initiation of a traffic control system and the erection of barricades and signs to keep the crowds under control and away from accident hazards.

Visitors who had permission to

Now--shiny, safe floors all year 'round with - -

SUPER SAFE CETOX

Hydraoxated carnauba floor wax - - It's all-weather-slip-proof!

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enter the sites were required to register at the superintendent's office, where they were issued steel hats and given a briefing on the hazards of the job they would encounter. These requirements were enforced and accepted by all visitors regardless of position, a fact which became significant in establishing the general attitude toward safety practices.

Steel helmets were used by everyone without question. Life lines and safety belts, used on some jobs at the outset, were soon discarded and on later jobs they were used only in special circumstances. It was found that they restricted movement beyond the requirements of safety, frequently had to be disconnected, thereby leading to the possibility of relying on a safety belt which might unconsciously have been disconnected and, in general, hampered work operations.

The omission of safety belts was compensated for by more extensive provision of railings, toeboards, and barricades. In addition, strict orders were issued that travel between various levels in the towers was to be only by means of temporary ladders, or stairways when installed. The only fatality to anyone working on the projects resulted from direct violation of these orders when one worker, desiring to descend from one level to another 35 feet below, elected to slide down a rope. He was unable to hold himself and fell through the tower a distance of over 100 feet to the concrete base.

At those towers where the slipform method was employed, the method to be used to get concrete and other materials onto the small area of the working platform came in for considerable discussion. The solution, arrived at through mutual consideration by the contractors and telephone personnel, was to install a trapdoor in the center of the platform thereby permitting material to be hoisted through the interior well.

The door was designed to fall closed and to operate off the bucket on the upward trip. The doors were attended full time by one man who guarded the opening, opened the doors on the downward trip and maintained communication with the hoist operator by signals for accurately spotting the bucket.

The relatively small area of the working platform also necessitated careful control of the flow of materials, enforcement of good housekeeping and regulation of the number of people on the platform. Once concrete pouring had started it was, of course, necessary to coordinate the flow of reinforcing steel, material for window and port blockouts and other openings, and, of course, concrete.

At the same time it was necessary to limit the load on the platform and to allow space for movement so that all of the various operations could be performed as required. To this end the amount of steel and other materials aloft was kept to the minimum and all waste and debris was regularly and frequently removed. Storage arrangements on the ground also had be well organized and kept in good order to permit ready access.

During construction operations only those who had definite assignments on the platform were permitted there. At certain stages it was even found desirable to have the men work 12-hour shifts in order to reduce to a minimum the confusion of a changeover on the platform and the access ladders. It was also in these stages that the men were organized into teams in order to better coordinate their activities and insure that each man knew how the next man's function depended upon the satisfactory and timely completion of his own.

Where the fixed-form method was used, semi-permanent scaffolding secured to the structural

—To page 76

This Sign Needs No Words

Adding a note of startling comedy to the hazards of pedestrian railway crossings, "Screaming Meanie" literally jumps off his sign board to greet workmen entering the Colorado Fuel & Iron Company's main gate at the Pueblo plant.

Based on the principle that familiarity breeds contempt, safety experts at the plant are experimenting with "Meanie" to emphasize crossing warnings. It is felt that the men have seen the regular signs so long and are so familiar with them that they often ignore them.

Members of the labor-management safety committee discussed the problem. They talked with R. F. "Speed" Williams, cartoonist for the *CF&I Blast*. After "Speed" learned that some workmen were crawling through standing trains at the rail loading dock, he created "Screaming Meanie."

The cartoon poster shows "Meanie" leaving the scene where he has lost his pants in the coupling of two railroad cars. The sign put the idea across without the use of words.

Reprints of the poster have been placed on bulletin boards adjacent to rail crossings throughout the mill. The same character may be used to call attention to other plant hazards.

In the accompanying illustration Ted Naney, open hearth employee, stopped to look at the sign before entering the mill.

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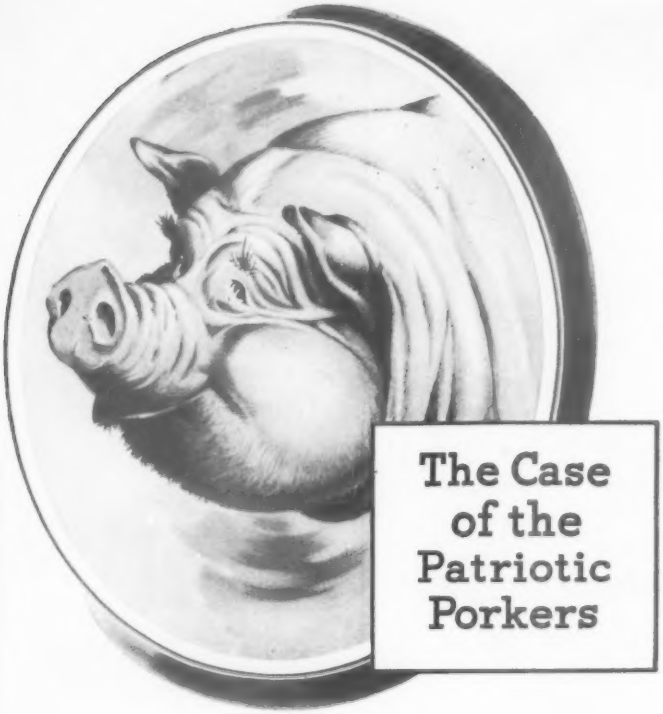

The Case of the Patriotic Porkers

It was in 1942, and the Navy wanted to construct a storage vault for certain vital supplies on a small island in Narragansett Bay.

But — the place was alive with rattlesnakes . . . sinister, deadly saboteurs which would threaten the lives of any construction workers brave enough to land on the island.

The Construction Boss thought snakes might be out of Ætna's field. But he was used to calling on the Ætna Loss Prevention Engineer whenever a safety problem stumped him.

The Ætna man reached into his bag of tricks and pulled out — pigs! Rough, tough hogs were rushed to the front lines. With squeals of glee, they began a rooting, if not tooting, battle. The rattlesnakes struck back. But their fangs sank only to the thick outer layers of fat where the venom was dissipated harmlessly. In short order, the hogs mopped up the enemy.

Citations? Decorations? We know of no official medal being designed and struck off to celebrate their victory. But those impervious pigs certainly deserved commendation, not roasting!

The Ætna Engineer? He got the sincere thanks of the Contractor and the Navy . . . and the knowledge that another satisfied, enthusiastic client would recommend Ætna's unusual Loss Prevention Facilities.

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Moral Challenge

—From page 52

stirred by dollar values? A good many of us, certainly, we who have public or institutional moneys to guard, or stockholders' investments. But not the generality of man, or the growing boy and girl. And we will have to go beyond dollar values to reach into the motivation of the average worker. The figures are too vast and impersonal. They will not affect the springs of action in the average man.

The fact that ours appears to be a money culture does not prevent most of us, in our individual ways, from worshipping God rather than mammon. "Out of the heart are the issues of life;" a respect for money values, however desirable, rarely proceeds from the heart.

Perhaps you may seek to move us by translating these dollar figures into considerations of waste. But that will not go very far with the average American. This is a land of plenty, he has been taught to believe. One of our most characteristic American traits is the luxurious feeling that we can afford to be careless about waste. We have practically made this into a national virtue, and look with amused contempt on the niggardly or thrifty habits allegedly characteristic of other national groups.

Is it not true that most of the considerations we have advanced in the cause of safety have been essentially negative? The negative values are implicit in the basic definitions: "Insuring against hurt, injury, danger or risk— freedom from danger . . ." This, it is true, will be a sufficient motivation for the calculating, provident man. But, for your sons and daughters, it will be too calculating, too negative.

Before we can get very far with the cause of safety, and hope to enlist in its ranks the generality of mankind, we must discover the moral imperative of safety. We must translate safety into a dynamic, positive expression of the moral aspirations of the ordinary man.

To find the moral imperative

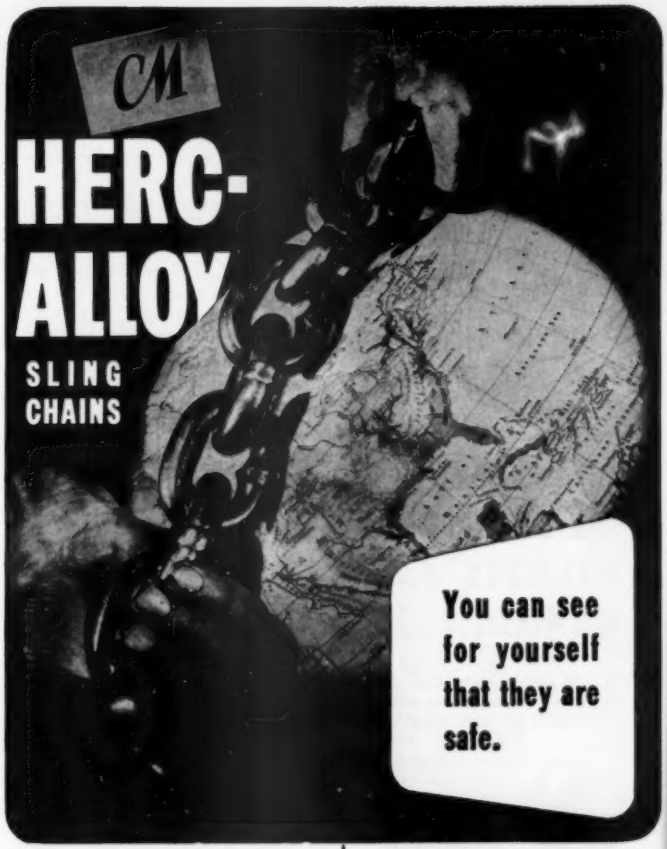
of safety must be, I think, our next move if the cause of safety is to come to full flower and contribute greatly to the welfare of mankind. We now know a great deal about the techniques of safety, about methods and processes through which men can live safely. We know how to teach these processes to teachers of our children and to foremen and supervisors, and we teach them to teach others.

But if we teach only processes and techniques, then the moral content of safety, which in the final analysis is what will motivate men to live one way or another, is still missing. And we will be playing Hamlet without Hamlet.

I do not wish, at this point, to bog down in vagueness and obscurity. But I suggest that the moral content of the safety movement can be found in the moral content of democracy. That is, if democracy is really a moral issue and a living faith with us and not a mere cliché. If democracy is a living faith with us, then, as I understand it, we are committed to the proposition that the individual is important. The totalitarians say he is important only as a part of the group, or State. The State, they say, is eventually the only means through which the individual can achieve importance.

Democracy teaches otherwise. It says the individual, in himself, in his own life, is important. The State is only an expression of ourselves as individuals, and we as individuals can change the State if we wish. It is the individual, we say, who is the authority, not the State. And experience teaches us this is true. A foreman or supervisor will not get very far if he does not know that each worker is, in a very real sense, a kind of authority in himself, an authority which must be appealed to and invoked.

But it is not enough simply to say that the individual in a democracy is important. Important for what? The answer must be simple and positive: the individual is important as he embodies an expression of life. Accidents, waste, injuries—these are incidents of the process of death



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—the opposites of the process of Life. In committing ourselves to the cause of safety, we are identifying ourselves with the belief in life, with a belief in the importance of the individual life.

Does it appear that our mountain has labored and brought forth a mouse? No. A belief in the value and importance of the individual life is no philosophical mouse. It is, if we hold to it and practice it, a magnificent and creative way of living. It is a triumph over despair, doubt, disbelief, and cynicism, over waste, destruction, insecurity, injuries, accidents, war, and death. No one need wish for stronger, fiercer, or more subtle enemies—not even Beowulf.

Who can know and who shall say what the individual life is capable of? Who will say what greatness Marine Major Benjamin Norris of the *Midway* might have won? Who will say how the face of our present world might even now be changed if the taxi which injured Winston Churchill on Madison Avenue had killed him?

True, few of us are of this heroic stuff. But who shall say what any one of us might make of life? One thing we do know: we shall make nothing from the materials of loss, waste, injuries, accidents, war and destruction. This is the process of death.

But the process of life, as we use the phrase here, must mean more, much more, than the simple fact of physical existence. To live must mean more than merely to endure. The promise of democracy cannot be fulfilled if, in the words of Thoreau, men must "lead lives of quiet desperation." If, for example, through the potentially beneficent techniques of time and motion study, work simplification, technological improvement, and increased efficiency of the production line—if, through these, man's work becomes in fact increasingly atomized, dehumanized, and empty of creative satisfactions, then such work cannot be an expression of the process of life, nor does such work reflect the positive moral content of the democratic faith.

If a man must lead a "life of quiet desperation" he will be more accident prone, I would guess, than one who does not. For him the years ahead will not present a vista of alluring alternatives for which his life and energies must be saved so that they may be poured out richly in creative usefulness and personal fulfillment. The athlete conserves his strength for the race and the prize to be won. But to another, there may be no race, but only a desperate pursuit. And if to him there seems no prize to be won except freedom from pursuit, who will persuade him that safety lies in life rather than in death?

The process of Life is a process of positive faith and belief, a process of vision and creativity and personal fulfillment. In this process, which only safety and security can make possible, lie all our dreams of human betterment, all our aspirations for a better world.

The materials for a moral imperative of safety are therefore to be found within the moral implications of democracy, if it is truly a moral faith with us. You and I will shape and express this moral imperative in different ways. But find it and express it we must, or the cause of safety will falter on cold and calculating considerations, and fail to move the hearts of mankind.

Studies Eye Safety Record

NED H. DEARBORN (left), president of the National Safety Council, is shown a pictorial display of Oldsmobile employees whose eyes have been saved by wearing safety glasses. J. R. Stone (right), safety director of Oldsmobile Division, General Motors, Lansing, Mich., pointed out that 68 eyes have been saved since inauguration of a compulsory program requiring all persons in its plants to wear safety glasses. This program went into effect April 15, 1947. Visitors as well as employees wear the safety glasses.

The Craftsman

—From page 37

We talked some more, getting nowhere. Then Jim Mason had an inspiration.

"The Kawalski technique might work," he said.

"Huh?" said Brill.

Harry Dexter said, "Kawalski? "He's not the same kind of guy at all."

I was going to agree with Harry, but then I stopped. There *were* some points of similarity, underneath extreme surface differences. Before I said anything, Jim started explaining.

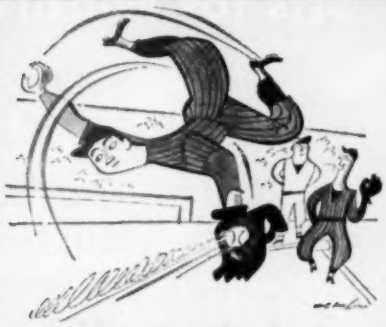
"Joe Kawalski is a foreman now, but three years ago he was a dumb trucker. He was tough and knew it. He was a leader among the men, a malcontent, a guy who hated authority. The accident rate in his unit was high, so the safety engineer enlisted Joe as chairman of a safety committee for the unit. The tough guy—and he was sure he was too tough and skillful to be hurt—was willing to preach safety at the others—his inferiors, as he saw them. He got good at it. The genuine leadership Joe possessed was redirected from opposition to safety work and management generally. Now he's not only a foreman—he's a safety enthusiast."

Brill shook his head. "You say he was dumb. Smith isn't. He doesn't need the glory of being chairman of a safety committee, as long as he has the glory of being top craftsman of our unit."

Then I had a hunch. "Look," I said, "could you possibly spare Smith for a half hour a week for an in-service training course among your own men. Not on safety but on machine shop technique?"

Brill thought, then replied, "Sure. I've been thinking about it. We've got some pretty good young fellows who need tips on the fine points. I could let Smith talk to half a dozen of them, with demonstrations, right in the shop. He'd like that, as a matter of fact, and they'd learn enough to make the investment in time worthwhile. But I don't see how that concerns safety."

I told him the obvious thing—



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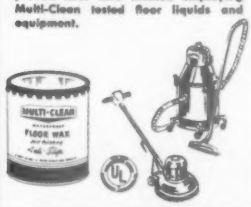

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that safety was an integral part of craftmanship and that Smith himself, in his work habits, showed that he knew it. He had, as Brill himself had told us, even recognized the desirability of goggles—for everybody but himself.

"Let him get started," I advised. "Don't tell him what to teach. Then, before the second meeting of the class, I'll come and talk to him. I think I can show him that his teaching will fall flat unless it is backed by his own example. It might work."

Brill thought it over a long time. "You know," he said finally, "I think it might. The guy's just vain enough to love a chance to be the professor. And once involved in it, he'll listen to reason, when we put it to him, not that he's wrong about wearing goggles for his own safety, but that failure to wear 'em will spoil his new role.

"It's darned well worth a try."

Safety on the Hilltops

—From page 70

steel by tie rods was erected both inside and outside the walls. Access and working areas were carried upward on the scaffold as the structure progressed. This procedure provided a secure base for the working areas and particularly for the operations involved in moving the bulky forms to their successively higher locations. While the scaffolding provided a built-in means of climbing, this was considered hazardous in the heights involved and ladders were provided.

For both types of construction vertical ladders were prohibited. For the temporary arrangement during construction, zig-zag ladders were installed with rest stages at approximately 15-foot intervals. As previously indicated, all of the working platforms, scaffolds, and temporary floors were equipped with railings and toeboards and, in most cases, an intermediate rail was installed. When an employee was traversing several stages upward a 10-second rest period at each stage was prescribed, a regulation which is still in effect for maintenance person-

nel who now have to climb to the radio rooms or the top deck.

Further provisions which were directly concerned with more personal safety precautions included the issuance of goggles for use in jobs such as spray painting and concrete finishing where the possibilities of eye injuries were proportionately higher, and the issuance of prescription safety glasses to all men who wore glasses normally. Clothing standards were suggested and rain clothing was issued by the contractor. General protection from inclement weather was provided by tarpaulins and, in some cases, by permanent "roofs" over working platforms.

All machinery, including that for handling materials, came in for a major share of attention. Lifts, hoists, shafts, winch lines and similar apparatus were constructed in accordance with the specifications in the American Standard Safety Code and were frequently inspected. In addition to the precautions set forth in the Code it was found desirable to protect all horizontal runs of hoisting lines by enclosing them in a box-like guard to eliminate any possibility of contact as the lines became taut when load was applied. All of the machinery at the base of the towers which required constant attendance was roofed over to protect the operator from falling objects and in many locations special barricades had to be erected to keep curious animals away.

Because of the height of the towers, ground to working platform communications were handled by telephone. Linemen's field telephone sets, equipped with their own batteries and signaling generators, provided a simple and effective communications system. A signal gong was installed in the hoist operator's cab, operated from a push-button on the working level.

Further control of the loads on the hoists and concrete lifts was obtained from a signaling system operated from the load which, through a series of limiting switches, operated vari-colored lights in the operator's cab. By means of these lights the opera-

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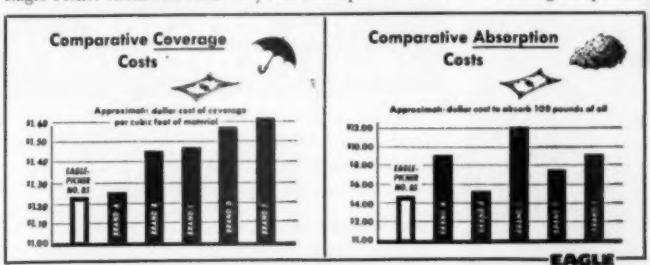

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tor could determine the position of the lift at all times, with final spotting controlled by gong signals.

While certain specific items received detailed and individual consideration, more general requirements also required attention. Temporary lighting and power for motors had to be provided and received particular attention where 24-hour operations were scheduled, not only for illumination of the working area but also, for safety reasons, of all of the ladder-ways, platforms, storage areas and the general construction area. While the installations were temporary, they conformed in all respects to the regulations in effect in the particular community or, lacking local regulations, with the National Electrical Safety Code.

Lightning protection, an integral part of the design for the completed structure, was also installed and extended as the building progressed.

Fire-fighting apparatus was provided freely at various locations and, when weather conditions required working under tarpaulins, the amount of apparatus in the working areas was increased. Wall-type first aid kits were also placed in strategic locations for use by employees and by the representative number of men who had received first aid training. Also conspicuously posted was a list of the names, addresses and telephone numbers where medical assistance could be obtained in the vicinity. This last measure was instituted by the contractor in the early stages of operations.

As the tower structures neared completion, the stage was set for the start of another phase of the job, the task of raising the antennae to the top decks. The antennae are pyramid-shaped structures ten feet square on the base (or face when erected) and about ten feet in depth, tapering virtually to a point. The assembled structures weigh slightly over one ton.

The job of hoisting the antennae to their positions was handled in some locations by contractors but, at most locations,

was done by crews selected from Long Lines Construction Forces. As in the previous phases of the over-all job, the men were examined to determine their physical fitness for the unusual task. The requirements were the same as for the inspectors. Also, as in previous phases, thorough training was given before the job was started; in this instance with special emphasis on developing particular job skills. The methods and procedures to be followed were carefully explained with particular attention to the safety considerations involved in the choice of specific methods.

The first step of the job was to assemble the antennae on the ground and for this purpose special platforms were erected near the towers to provide a level surface and uniform and secure footing. The platform also provided a base to which to fasten the antennae to prevent them from being blown over during periods of high winds. During this phase of the operation all men were provided with steel helmets, gloves and goggles with colored lenses which protected the eyes and cut down the glare from the aluminum antenna structures.

The hoisting operation was accomplished by using a mast and boom arrangement anchored at the center of the antenna deck. The derrick itself was raised by erecting a temporary A-frame and passing a fixed line over it from an anchor in the deck to an anchor in the ground at a distance approximately the height of the tower from its base. The load was attached to pulleys which rode up and down on this line, powered by winches on a line truck parked nearby. The truck also subsequently powered the derrick.

Because it was necessary to remove sections of the guard rail from the top deck during hoisting operations, all men who worked aloft were required to wear safety belts and be lashed with a length of rope that restricted their movements to the area of the deck. Further precautions to prevent falling, since much of the work was done during winter months, involved the use of abrasives and

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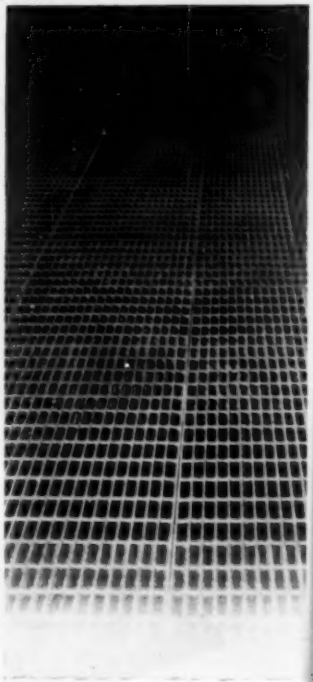

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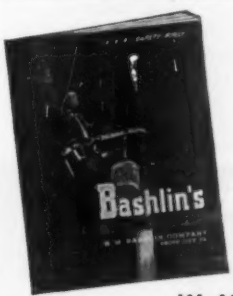

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tarpaulins during snowy and icy weather and the use of rubber-soled shoes.

The hoisting operation proper was under the direct and constant supervision of the gang foreman who maintained contact with the ground, the deck and the truck through a temporary telephone signal circuit. During this operation everyone not having a specific job to do was required to remain outside of a restricted area which was established. This served both to protect them from possible injury and to prevent congestion. The maximum number of persons permitted on the top deck during hoisting operations was specifically set at six.

The antennae behaved like big sails with their 100 square feet of face area. Weather conditions, therefore, were important in scheduling the job, and several postponements were necessary because of high winds. Tag lines were used on the lower corners to control the antennae during the hoisting and to avoid contact with the tower during the ascent.

Wire rope was used for all hoisting operations so special care was taken to see that the truck was properly grounded while the winch lines were in position. In addition, lightning wire was provided on the derrick mast and connected to the permanent protection system. Work was suspended when electrical storms were actually in progress.

Other general safety measures included adequate lighting of working areas and access stairways; insistence on good housekeeping; care in using tools while aloft and proper storage of tools not in use; daily, careful inspection of all equipment and winch lines; observance and prompt correction of hazards and care in using and lashing ladders.

The list of specific safety regulations in effect during all the stages of construction is a long one. Some of the rules are standard in the construction industry generally, others were adopted because of specific conditions encountered in this particular project. Many were anticipated and included in the prescribed job methods. Many more came about as a result of observation of the day-to-day activities since both contractors' and telephone people were engaged in a new and unique assignment.

Imposing as the list is, it is not the significant thing, for it is a result rather than a cause. Far more important was the cooperative endeavor of everyone involved, contractor and telephone man, engineer, safety supervisor, foreman and craftsman, to complete the job in the safest possible manner and to adopt the necessary rules to accomplish this end.

A psychologist is a man who, when a beautiful girl enters the room, watches everybody else.

A health article declares our noses are getting longer. Could be wrong—maybe it just looks that way, with the human race sticking its neck out farther and farther.

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Industrial Health

—From page 46

problems before they actually retired.

It was decided to use the discussion group approach because it has been found that people who are sometimes hesitant to discuss their affairs with a single interviewer will talk freely in a group where everyone is discussing the same type of material.

The experimental program now being carried out consists of a session in which each individual makes out a chart showing his needs for activity, feeling of achievement, the feeling of importance, the feeling of belonging, the feeling of usefulness, and the need for companionship. They then set down the activities which they have planned and checked the activities against the needs to see how satisfying the result is likely to be.

The second session discusses health in retirement with the aid of a physician. They then have a detailed discussion of the plans of each and the incomes which they will have available to realize those plans. They have a session on the workmen who have already retired and the types of activities and interests which they are concerned with in retirement and finally a review session.

At the end of the regular five-session course each individual is offered individual counseling if he wishes it and the members of the employee relations staff plan to check with each individual six months later to see what progress he is making.

The present program is exploratory but if it works well the plan calls for eventually starting the planning for retirement of each employee from four to five years before he reaches retirement age.

When the brewery wagon ran over the Scotchman, it was the first time the drinks were on him.

The world is moving so fast now-a-days that the man who says it can't be done is generally interrupted by someone doing it.

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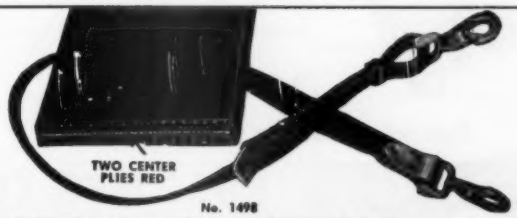

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R. H. BUHRKE CO., 4701 W. Grand Avenue, Chicago 39, Illinois

Hazards Versus Cost

—*From page 25*

production and efficiency usually results when the operator feels sure that his machine is adequately guarded for his protection.

Another reason for requesting management to guard all machinery adequately is to make sure that, when new machinery is purchased, complete guards will be required before the machinery is put into operation. The purchasing agent can insist that all guards and hazards on a new motor or machine be made mechanically safe. Thus the safety director and the purchasing agent as well as the departmental supervisor can coordinate their efforts in seeing that all machines are as safe as possible before putting them into production.

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MR. MUMFORD:

The problem of guarding every hazard point in an industry as far flung and as widely varied in its component parts as a railroad is a difficult one, but one which we do try to meet. In the early days of organized safety much time, effort and money was spent in the application of guards and in the removal of hazards. In the subsequent years the sharp decrease in accidents due to physical conditions indicated our major problem rested in the actions of individuals rather than in questionable conditions.

Our determination, however, is to prevent accidental injury without regard to severity and, accordingly, each accident is analyzed, with responsibility fixed for contributing causes and an attempt is made to apply the cure and prevent repetition.

A case at hand indicated a man severely shocked when he reached into the exposed switch box of a gantry crane. He returned to work with no loss of time, but realizing the seriousness of the matter, we've had every crane on the entire system checked and corrections have been made at a cost of many thousands of dollars.

Another program, that of providing walkways and railings at bridges has been steadily going forward each year, although a tremendous cost is involved.

Other programs call for certain changes in equipment as it periodically reaches the shop with the safety of the employee constantly in mind. An example of this is the programmed installation of a continuous door stop to baggage cars doors which has been going steadily forward, even during the war years.

The prime consideration is of course the potential. The possibility of death or serious injury naturally overcomes any consideration of cost. The chance of lesser injury is not overlooked, however, and the constant query is what has been done or can be done to prevent recurrence.

In most cases an interested local

supervision promptly provides the answer by the installation of a guard or device of some sort and the hazard is removed.

MR. MYERS:

Where a man can get hurt, he will get hurt—eventually.

Why, after 30 years and more of the safety movement, haven't these "thousands of old motors" been guarded progressively through the years?

We know that even in the most modern of plants that people can and will get hurt, as witness the employee who, out of curiosity, investigated the noise behind the grille in a modern factory and found the noise was made by a dust removal fan. He lost a finger in his investigation.

What would this same safety engineer do if his company built an additional plant and, on his first inspection tour, found a number of known hazards? Would he wait until "his" experience cost him more than $1000 in insurance and compensation or would he capitalize on the experience of others—as he does in much of his other work — and remove the known potential injury causes?

Seems to me he has to make one of two choices: (1) Guard the present motors at great expense or (2) Educate the workers not to slide their hands along the motor housing.

In educating the workers against this hazard, he will need to be very direct: "Keep hands away from moving machinery" is not enough. Say instead on the sign attached close to the hazard: "Keep fingers out of machine openings."

The engineer must be practical, however. It is physically and economically impossible to guard against every hazard. One doesn't put a guard rail along the face of a 200 foot wharf to prevent the

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unwary from going overboard.

If this man's experience of three amputations in 24 years, added to the experience of other companies, points out this motor fan hazard is a very real one, then it would seem best to do something about it; otherwise, I would believe that the necessary progressive abandonment and substitution of newer guarded motors would solve the problem.

MR. H. L. SMITH:

This old equipment referred to is motors with openings above the fan. I believe the answer to this question is *guard them*, or reduce the hazard by location. You state that these motors have already cut off the ends of three fingers, therefore, we need no one's opinion as to whether a hazard exists. You cannot change or reduce the hazard by the fact that only three men have been crippled in 24 years. Actually, however, the guarding should have been done by the manufacturer of the motor.

It has been my experience that in industry we have many hazards which cannot be properly guarded, therefore, why squabble about those which can, especially with three stub fingers as proof that the hazard exists?

It is quite likely that before these employees lost their fingers others have *almost* got their fingers caught.

Installing guards then would have saved the fingers. Fingers are mighty important to people who make a living with their hands. Let's help save 'em!

MR. W. S. SMITH:

The principle involved in this question is very clear: All machinery must be guarded whether it is old or new. To use a low frequency and severity rate as an excuse for not guarding machinery is a dangerous philosophy, because it is from a series of minor injuries that the serious ones finally arrive.

The practical thing to do is guard the old machines on a sensible basis by studying how long they are likely to last. For example, if the machines are going to be scrapped in a few months, temporary guards can be installed at less expense than permanent ones.

The greatest danger in this whole problem is in countless cases where a machine is classified as old and about to be scrapped, then it goes on running for years. This is particularly the case just now when machines are at a premium.

Failure to guard machinery because it is old and the accident experience is low is not a safe procedure to follow.

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MR. STEEL:

Every venture, whether in business or private life, has certain risks that must be accepted.

An extreme case would be that of a man wanting to cross a busy street. He can walk across in the middle of the block without looking either way, and the chances are that he would get through without being injured. However, if he wanted to reduce the hazard to the minimum, he could refuse to cross that street until he, with his own money, had pulled the necessary strings and constructed an overpass over that busy street. Every one will agree that this latter proposition is very impractical and the average man will walk to an intersection or a cross-walk, wait for a break in the traffic or for a change of traffic signals, and then proceed across the street with caution.

Some "dyed-in-the-wool" safety men might hold out for guarding every one of these hazards and in some cases their management might back them up, but for the average safety man working in the average company there has to be a balance between the hazards involved and the cost of minimizing them.

I feel that each safety man should have an understanding with his own company as to just how far management is willing to go to spend money to reduce hazards. We can never reduce them all 100 per cent, but some managements will go farther than others and in some cases it may be that they are going too far.

No company can afford to spend a million dollars to prevent possible minor scratches, yet who can say how much should be spent to prevent the possible loss of a human life. It is probably true that every management has a limit that they will not exceed to save an occasional life. It may sound hard-boiled, but it's just practical business.

In my opinion, this is a thing that each safety man should work out with his own company, and if the hazard is great enough, he should keep calling it to his employer's attention until he has been told they cannot spend the money, even though the risk is great.

MR. ZESKEY:

A safety engineer must spend his time and efforts, and the money allocated to his department where they can do the most good.

He must not overlook hazards, but he is often obliged to postpone, perhaps indefinitely, the positive correction of some minor ones in favor of more serious ones. Too, depending on his relationship with management, he must not jeopardize the chances of success of his important recommendations by submitting unimportant, expensive ones.

Finally, he must use the tools which are appropriate to the job at hand.

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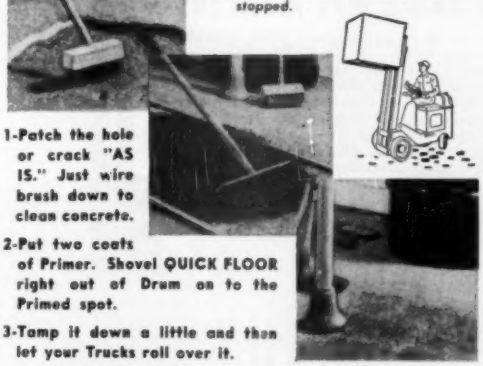

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Physical guarding is an important tool. It is by no means our only tool. In this case, it is not appropriate when its cost is considered in the light of probable results. So the question becomes simply: What other tools can we use when circumstances or good judgment prevent the use of guards?

Or, getting down to fundamentals, here's the problem: We're deprived of the use of a small part of one of the three E's of accident prevention work—we can't do a complete job of Engineering. We can do *some* Engineering; we can also do all the Education and Enforcement work we please.

A complete answer to this question would require a textbook on safety engineering, lacking only a chapter or two on guards.

Here, however, are a few obvious suggestions: Good job instruction, competent supervision, an efficient job-placement policy. These are probably the most important. Secondary measures should certainly include perfect housekeeping in the working area, careful attention to underfoot surfaces, adequate illumination.

Then there are the old faithful standbys: warning signs, posters, and red paint around the danger zone.

This is a broad answer to a narrow question, but the question exemplifies the need to consider all accident prevention problems in their proper perspective and with due regard to the fundamentals of our profession.

MR. WOODWARD:

The safety engineer who steps into an organization at the very start of the project has a tremendous advantage. It is a situation which we all covet inasmuch as to be on hand at the very start of things permits us to have our say in regard to factory layout, equipment, and the various phases of personnel administration which fall within the province of the accident prevention expert. However, most safety men are not so fortunate.

It is not unusual for the safety engineer, coming into an organization which has existed for years prior to his advent, to find a great deal of ancient equipment. Such apparatus immediately becomes one of his most difficult safety problems.

As implied by the question, it is logical first to analyze experience with the equipment in question. The results may be that we find we cannot directly trace a great many accidents, even serious ones, to the equipment which we wish to have guarded. Personally, I do not think such a situation is usual.

If I were in that same position, I would keep on trying to discover logical reasons for replacing the equipment or putting it into better condition. In your letter you gave a case involving motors where the compensation cost of accidents was less than a thousand dollars in 24 years, and thousands of motors were involved. Frankly, the safety engineer in that company must have a mighty fine safety record, and all the other equipment must be in such excellent condition that he is fortunate enough to be concerned with a comparatively minor problem like this one.

Answering your question on the more generalized basis, the most successful approach to the problem of getting management to guard old equipment or put it into more safe condition is to study the general efficiency of the plant's equipment.

Old equipment which is unsafe is quite likely to be inefficient from the operating standpoint, maintenance costs are apt to be high, and more productive equipment is probably now available on the market which would also be more safe.

Management always welcomes recommendations which lead to increased efficiency and productivity.

In view of those facts, a safety engineer with an analytical mind and a general knowledge of manufacturing problems can usually do a great deal to bring about the replacement of outmoded equipment or the renovation of such equipment.

Penn State to Hold Safety Institute

The Pennsylvania State College will offer its Fourth Annual Industrial Safety Institute the week of September 17-21, 1951. The Institute will be conducted on the Penn State campus. Speakers from various industries will give lectures and lead discussions. Among the items to be discussed are: accident costs; plant protection; fire prevention; speaking and writing for safety; helping the foreman get work done safely; industrial hygiene; women and minors in industry; and keeping the program alive.

Any person engaged in accident prevention and related activities in his plant is eligible to attend. The fee is $20. Additional information can be obtained from Professor Amos E. Neyhart, Administrative Head, Institute of Public Safety, The Pennsylvania State College, State College, Pa.

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Low Voltage Extensions

—*From page 29*

17. The 12-volt and 32-volt systems are generally used in built-in circuits with the secondary (light side) wires run through rigid conduit. Receptacles are mounted in outlet boxes, and the light and cord are a separate unit to be plugged in.

18. The receptacle and matching plug should be of a different type from those used on regular 120-volt circuits, to prevent the worker from plugging a low voltage extension cord into the 120-volt circuit, which might result in exploding of the low voltage lamp, causing face and eye injury from flying glass. (See Figure 2.)

19. Where there are many types of extension cords, some companies use a color scheme as an aid, marking the low voltage conduit lines, outlets and corresponding plugs of the cords.

20. Racks, reels or fixtures should be installed near the outlet so that the light cord can be coiled after use and hung up.

Figure 5. Tubular inspection light plugged into a 6-volt transformer unit, being used to inspect boiler tubes.

Figure 6. Transformer enclosed in rubber and holder with metal guard and vapor-proof globe.

21. Portable units are available in which the transformer is enclosed in a protective metal or rubber case with the secondary cord permanently attached. (See Figure 3.)

Selection of equipment

22. A portable unit so constructed that under all conditions it will be watertight should be selected. Moisture inside the unit can cause shorting from primary to secondary, so that the secondary side becomes energized with higher voltage than that desired.

23. It is also recommended that the wiring to the primary side be a three-conductor cord with two wires connected to the transformer coil and the third wire, which is a ground wire (green covered), attached to the transformer laminations. (See Figure 4.) Then the grounded primary side will protect the worker in the event of transformer failure, which might, although the possibility is extremely remote, raise the secondary voltage over the desired limit.

24. Another argument in favor of grounding the primary side only is that even if an uninformed person making repairs fails to identify the conductors on the primary side properly and wires the unit wrong, the misapplied

voltage cannot get over to the secondary side.

25. Under no circumstances should an auto-type transformer be used in a low voltage installation, because there is no isolation between the primary and secondary voltages.

26. The isolated secondary type of transformer by its construction assures maximum safety because the two windings are isolated and insulated from each other.

27. Selection of secondary voltage of 6, 12, 24, or 32 volts will depend on the voltage drop where long leads or extension cords are to be used. Extension cords should not be smaller than #16 AWG. for use on low voltage equipment.

28. Six-, 12-, or 32-volt lamp bulbs for these units in the standard base are normally carried as stock items by electrical and mill supply jobbers. Some manufacturers have their equipment made so that only lamp bulbs with left-hand threaded bases can be used. Then the 6-volt bulb cannot be screwed into a 115-volt lampholder, and vice versa.

29. One type of unit is constructed so that the 115-volt line cord and 6-volt secondary light cord can be plugged in and removed separately. This design is convenient for cord storage and for exchange of lights. A tubular inspection light can be attached for use in barrel openings, boiler tubes, tank openings, vents, and similar areas. (See Figure 5.)

30. The manufacturers provide long guarded holders with built-in metal reflectors for general utility purposes and for workmen's tool kits. For use in refineries, power plants, gas companies, and chemical manufacturing, or in tanks containing vapors, vapor-proof globes and guarded holders can be secured. (See Figure 6.)

31. Since the unit is portable, the power of the transformer is seldom over 100 watts capacity. Lamps no larger than 75 watts should be used, to ensure the maintenance of a low operating

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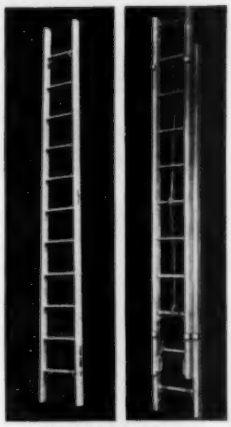

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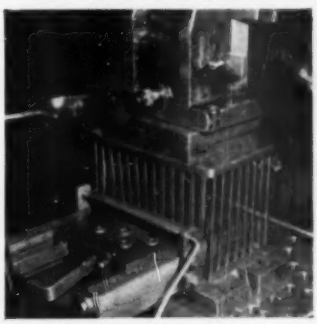

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temperature in the transformer, with resultant safety and longer life and service.

32. A multiple heavy duty water-proofed transformer unit has been constructed with a carrying strap and openings for four 6-volt extension light cords. A similar unit for low voltage tools is made with four outlets for a 32-volt system. This unit can be used on jobs where each of several men needs a light source.

33. Each circuit of this multiple unit is individually fused so that the failure of one does not affect the others. The unit is especially useful for work inside a boiler, pump well, processing kettle, tunnel, or similar place where several lamps are necessary. Then if the man should drop or break a lamp, he would still have illumination and would not have to move around in total darkness.

General precautions

34. Workers should be cautioned to leave the transformer in such a position that neither the primary leads nor the primary side of the transformer can come in contact with objects being serviced.

35. Cords should be kept out of pinch points, and the equipment should not be dragged across the floor or over rough objects. The transformer should be located so that it will not roll and drop from one level to another, damaging the equipment.

36. Damaged or defective equipment should be taken out of service immediately, tagged and turned in for replacement or repair. Because the worker fully depends upon the safety of low voltage equipment, only qualified electricians should make repairs.

37. It is suggested that where portable low voltage equipment or a built-in system is available, the company revise its rule books to require use of that equipment in place of 115-volt extension cords.

ACKNOWLEDGMENT

The first draft of this data sheet was prepared by James A. Edmonds, vice-president, Daniel Woodhead Company, and member of the Executive Committee, Electrical Equipment Section, National Safety Council, and reviewed by F. T. Clarke, chairman, Engineering Committee. The final draft was prepared by George MacDonald, staff representative, Electrical Equipment Section, reviewed by the Safe Practices Conference Committee, and approved by the Industrial Conference of the Council.

Indoctrination

—*From page 21*

America and a higher standard of living. And they were very practical about it all.

Here was management at work doing everything in its power to prevent the fatal touch of death or dismemberment within its gates, and off the job, too.

Here on the front line, I saw and heard this group of professional life-and-limb savers, engage in a never-ending struggle to prevent disaster and misery on the home front, as well as the shop front, trying desperately to prevent sorrow for the thousands of G.E. families whose very livelihood depends on staying accident free. Backed by management, money, and the last word in safety devices, they planned, discussed, advised and charted the safe road for G.E. workers.

Still the evidence showed that men were being careless, taking chances, and sometimes getting knocked out.

On the agenda were many topics about which I knew little, but soon learned much: Eye hazards and safety glasses, employee reaction to G.E. instruction books, training in safety for the new man, electrical hazards, grinding hazards, first aid classes, disaster plans, evacuation plans, fire prevention, safety shoes. Each was a target for this group of safety sharpshooters. Here was the stuff I had been looking for to help me put into cartoons the bare facts of accident prevention.

I hope I can put on the printed page some of the safety spirit I found here. If I can help indoctrinate some poor, unthinking, chance-taking, potential victim before he shoves his hand into a punch press or loses an eye because he forgot to wear safety glasses, I'll be very happy.

Conditions Under Control

—*From page 20*

The integrated ceiling-lighting system, developed by The Austin Company, provides a simple means of installing fluorescent lighting systems in plants, offices and other buildings, particularly where acoustical ceilings of the preformed type are installed.

The system employs a specially designed trough-like structure of heavy gauge sheet metal, identified as a "troffer beam." This serves as a structural support for the ceiling installation and also becomes the raceway for the fluorescent lighting fixtures. The troffer beams are spaced three, four or five foot on centers for the support of the ceiling since the tee clip bars used for the support of the ceiling tiles are limited to a four-foot span which is reached on a five foot center-to-center spacing.

The desired level of illumination decides whether every troffer beam or every other beam is to be equipped with lighting fixtures. In most cases fluorescent lights would be located eight to ten feet apart with the intermediate troffer beams covered over with ceiling tiles. Changes in the system are easily made.

The troffer beam has adequate strength to carry ceiling loads, catwalks, electrical conduit, and other building service piping.

Since all of the service piping and power distribution facilities have been hung from the ceiling of a full service basement underneath the production floor, these areas are free of overhead service lines. Instead, piping and conduit are brought up by short lines through the first floor slab directly to points where they are needed. Approximately 25,000 knock-out pipe sleeves provided in the floor slab make it possible to rearrange or install additional production and packaging equipment as needed without creating any disturbance or dirt on the manufacturing floor.

All of the air-conditioning equipment has been installed above the acoustical ceiling on reinforced concrete platforms

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which are supported by the welded H-section roof trusses. Because of the wide range of operating conditions and the necessity for maintaining precise control in so many different departments, 120 separate air-conditioning systems were required. Of these, 75 are in the central manufacturing area truss space.

These range from simple comfort cooling units serving the service areas and production offices to highly complex combinations in which ultraviolet germicidal lamps, chemical dehumidifiers and electrostratic precipitators have been combined with other basic equipment to meet the demand for sterile and favorable manufacturing conditions, maximum fluctuations of two degrees in temperature, and humidity ranges between 10 and 50 per cent.

Approximately 100,000 lineal feet of duct work was installed to move all the air, which is handled through 2,377 supply and exhaust outlets at a rate of 2,810,000 cfm. Conditioned air is supplied to the plant at a rate of more than 1,220,000 cfm.

The manufacturing area is flanked on one side by a large raw material warehouse and on the other side by a large finished goods warehouse, each with an enclosed railroad siding and numerous truck loading docks. The arrangement of these facilities with respect to the manufacturing area provides for progressive flow of goods in process and for maximum use of modern materials-handling equipment. These warehouse areas are of monitor design with alternate 60 feet high and 40 feet low bays with columns 40 feet apart to permit free movement of fork lift trucks under conditions ideal for high pallet storage of materials and finished merchandise.

Unusual provisions have been made for the convenience and recreation of employees. Because of the outlying location, special attention was given to employee transportation. More than eight acres of paved parking space adjacent to employee entrances have been provided for those driving to work and the company has also established scheduled bus service between the city and the plant.

Employees arriving by bus alight in a covered concourse on the lower level at the head of a 20-foot corridor extending the full length of the plant directly beneath the center of the manufacturing area. Personnel offices, all employee locker and toilet rooms and three large lunchrooms have been located along the 1125-foot length of this corridor. From it stairs at various points lead directly to an upper corridor that bisects the production floor.

All food served in the corridor lunchrooms is prepared in a large well-equipped kitchen adjoining the 600-seat cafeteria on the main floor. In the summer, picnic tables on terraces nearby supplement the cafeteria seating.

A large, well-appointed employees' lounge adjoins the cafeteria and extensive indoor and outdoor recreation facilities have been provided. These include deck and table tennis, shuffleboard, a golf driving range and several baseball diamonds.

Buff glazed tile has been used throughout the corridors and most other permanent partitions. These have been held to a minimum in the interests of long-range flexibility. Because of the need for extremely close atmospheric and operating controls in highly specialized departments, extensive use has been made of movable steel partitions.

Manufacturing floors have a ground Gibraltar terrazzo type monolithic finish ideal for a pharmaceutical plant.

COMING EVENTS

In the Field of Safety

Sept. 6-7, York Harbor, Me.
Twenty-fourth Annual Maine Safety Conference. Arthur F. Minchin, director, Industrial Safety Division, Department of Labor and Industry, Augusta, Me.

Sept. 18-20, Cleveland
Ohio State Safety Conference (Hotel

Carter). Carl L. Smith, executive vice-president, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15.

Oct. 8-12, Chicago

Thirty-ninth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Oct. 29-Nov. 2, San Francisco

American Public Health Assn., 79th Annual Meeting. Dr. Reginald M. Atwater, executive secretary, APHA, 1790 Broadway, New York.

Dec. 3-4, Baton Rouge, La.

Louisiana Safety Association, Annual Conference. (Louisiana State University). Charles E. Doerler, secretary, P. O. Box 806, Shreveport, La.

Jan. 21-24, Houston, Tex.

American Roadbuilders Association, Annual Meeting. Eugene Reybold, executive vice-president, International Building, Washington 4, D. C.

Manual Makes News

—From page 32

men who are engaged in safety work in industry.

The MANUAL, Second Edition, is based on the same premise which underlies all of the planning for industrial technical and training materials at the Council. That is the principle that a major proportion of all accident causes are common to all industry. Inasmuch as the MANUAL, Second Edition, confines itself principally to the problems of manufacturing industry, the content of the book becomes even more generally applicable to all of its users.

Section 1, *Permanent Structure and Plant Layout*, was prepared by Gil Grieve, staff engineer. Section 2, *Maintenance and Maintenance Crews*, was the result of collaboration between Robert Moore and George MacDonald. Mr. MacDonald wrote the portion on maintenance crews.

William N. Davis, staff expert on boilers and pressure vessels, wrote Sections 3, 4 and 5 on *Boilers, Pressure Vessels and Refrigeration Equipment*.

Arthur Kelly developed the five sections on *Machine Guards*. The first of these deals with the principles of guarding and with transmission guards; the second, power presses; then metal working machinery and abrasive wheels, woodworking machinery and the guarding of special equipment.

In the second edition the *Ma-*

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terials-handling Hazards are covered under two sections, one on the manual handling of material and problems of storage and the other on the power handling of material. Both were written by Lester Dutton of the staff.

A. M. Baltzer wrote *Hand and Portable Power Tools*, and William N. Davis, in collaboration with Floyd Frazier, Section 14, *Welding and Cutting*.

Section 16, *Electrical Hazards*, was written by George MacDonald. Roy Benson prepared the four sections on *Flammable Liquids*, *Fire Prevention*, *Fire Control* and the distinctive new section, No. 26, *The Safety Man's Resources*.

Peter Marconi developed the section on *Personal Protective Equipment;* Chris Imhoff of the Motor Transportation Bureau the section on *Motor Transportation*.

The three sections *Industrial Health Engineering*, *Industrial Poisons* and *Medical Services in Industry* were written by the staff industrial hygienist, Floyd A. Van Atta.

Section 24, *Safety Organization and Training*, was the product of the joint efforts of Floyd Frazier and Glenn Griffin of the staff. Gene Miller, director of the Statistical Division, wrote the section on *Accident Records, Analysis and Costs*.

The book was organized and edited by Kent W. Francis, senior editor, with the assistance of Eilene Perry and Elizabeth Valovic. The tedious chore of indexing, so necessary to a good book, was done by Mildred Grant, staff librarian, aided by Mrs. Ruth Parks, in charge of the NSC Library.

Small Business

—*From page 27*

siderable success with liaison association committees:

Air Transport
Coal Mining
Construction
Food
Metals
Railroads
Rubber
Textile
Wood Products

The Section Association Committees survey the needs of their

industry, collect data on association safety programs and encourage inactive associations to participate in the work of the Section and to stimulate activity within the association headquarters and among association members.

The associations themselves are becoming increasingly aware of the benefits of a good accident prevention program, particularly the reduction of accident costs, the betterment of employee relations and public goodwill. Many associations have full-time safety personnel and publish excellent safety material for their members, such as specific posters, safety handbooks and special visual aids. Others conduct safety contests for their industry or join with the Council in sponsoring sectional contests. More and more associations are organizing volunteer safety committees and are starting to collect data on accident costs or include safety talks on their convention programs. As more data is gathered on the successful programs it will be translated into materials and service of value to other associations and Sections.

Recently, the Council started distributing an *Associations News Letter* to approximately 600 member and non-member associations on its mailing list. This newsletter, issued several times a year, will encourage associations to set up an active safety program and will provide for an exchange of ideas. Since the ultimate objective is smaller business, the content of the *Associations News Letter* will be slanted in that direction. Any interested person, company or association will be put on the complimentary mailing list upon request to the Industrial Department of the Council.

The National Safety Congress Program will feature a Morning Subject Session on Smaller Business Safety Activity and special meeting for trade association executives co-sponsored by the Council and the Trade Association Executives Forum of Chicago. The latter program is patterned after a highly successful safety meeting for association executives which was held in New York last September. In addition, several associations will hold meetings in conjunction with the sectional programs. The staff and section officers are making every effort to build up the attendance at these meetings. Details will be given in the Preliminary Congress Program.

For the first time a full-scale attempt will be made to mobilize all interested agencies to reach the small businesses which employ approximately one-half of the total working force of industry and which produce about two-thirds of all occupational injuries. Elimination of even half of these injuries would be equivalent to adding 40,000 full-time workers to the nation's productive forces.

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BURKARD PFISTER, serviceman, The Brooklyn Union Gas Co., Mineola, N. Y.—smoke asphyxiation. Certificate of assistance to JAMES J. MCCARTY.

ANTHONY CIRINCIONE, switchman, New Jersey Bell Telephone Co., Weehawken, N.J.—strangulation.

HENRY CRAMER JR., installer, New Jersey Bell Telephone Co., Hoboken, N.J.—gas asphyxiation.

WARREN L. GIBB, repair foreman, New Jersey Bell Telephone Co., Union, N.J.—gas asphyxiation.

KARL D. MELROY, transmission testman, New Jersey Bell Telephone Co., Morristown, N. J.—drowning.

AUBREY LAWRENCE, instrument man, The Texas Co., Lockport, Ill.—gas asphyxiation.

EARL STRAUSSER, foreman, West Penn Power Co., Charleroi, Pa.—gas asphyxiation.

E. J. LANTZ, roustabout, The Texas Co., Fairfax, Okla.—choking.

JAMES F. ORMOND, engineer, Sunray Oil Corp., Odessa, Texas—electric shock.

RAYMOND CRETCHEN, janitor, Shell Oil Co., Iowa, La.—electric shock.

It Pains to Be Ignorant

—From page 39

places it in pin cushion on counter.

MISS BLUNDERBUSS: Enters with glass of water, trips on high heels and spills water over herself and customer. Dries herself off, looks for place to put empty water glass, shrugs, tosses it in wastepaper basket. *(Glass breaks.)*

MISS DO IT RIGHT: Dries off customer and tries to soothe her.

NURSE: Waves smelling salts under Mrs. Snootypuss' nose.

MRS. SNOOTYPUSS: Leaves, shaking her fist and making threats with gestures.

PORTER: Enters and empties trash, cutting hand on glass in wastepaper basket.

NURSE: Bandages porter's hand, then arranges medicine and bandages on cart.

PORTER: Empties trash and leaves.

MISS DO IT RIGHT: Arranges coats on racks and inspects merchandise.

MISS BLUNDERBUSS: Stands at front end of counter, moaning and holding her head.

(Stock boy enters)

STOCK BOY: Pushes in truck load of boxes, looking back over his shoulder as though talking to someone, bangs into Miss Blunderbuss and knocks her down, shrugs shoulders, puts boxes on counter and leaves, pushing truck carefully, watching where he is going.

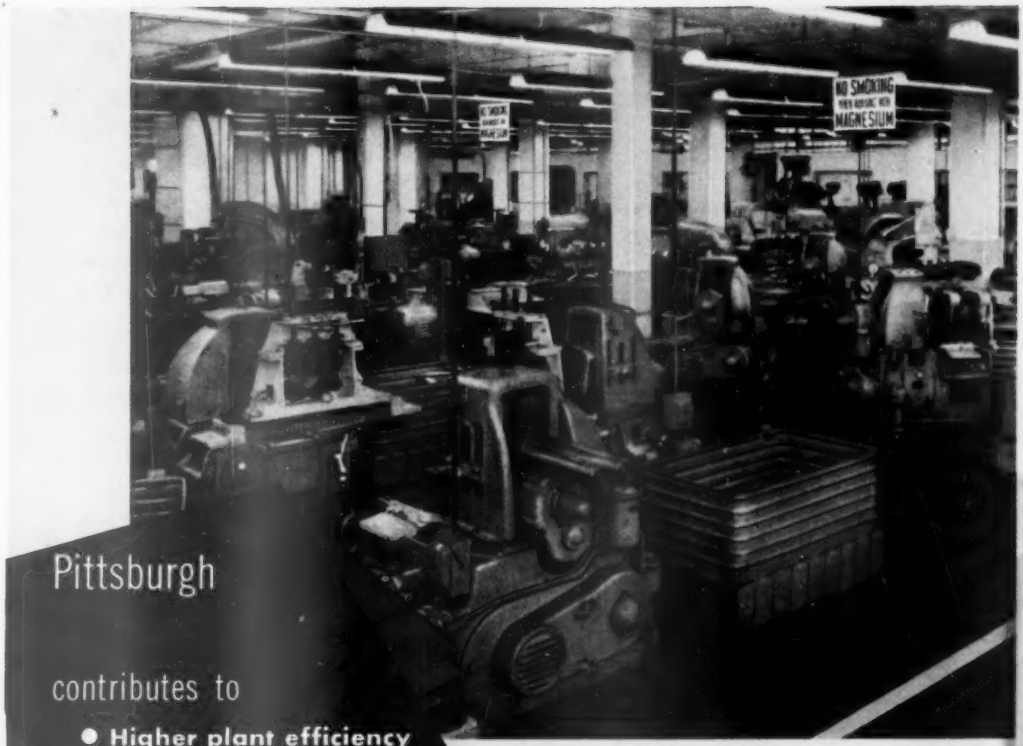
NURSE & MISS DO IT RIGHT: Pick Miss Blunderbuss off the floor and help her as she moans and hobbles off the stage.

Labeling Containers Cuts Hazards

The label must tell the story, states an article in the current issue of the *California Safety News*, warning manufacturers and distributors that containers of hazardous and poisonous substances must be properly labeled.

The ever-increasing use of chemicals in industry is likely to present unforeseen problems, says the article. And the hazards are often so great, and cause so many injuries, some fatal, that they must be anticipated at the very source.

The first line of protection against them can be provided by proper labeling of the containers. These labels must give the name of the product, a signal word identifying the degree of danger, a statement of any hazards, the cautions to be taken and (in some cases) instructions in case of contact or exposure.



Pittsburgh

contributes to

- **Higher plant efficiency**
- **Greater safety**
- **Better housekeeping**

White Sewing Machine Corporation utilizes scientific application of the *energy in color* in six and one-half million dollar expansion program to improve working conditions and increase production.

THE WHITE SEWING MACHINE CORPORATION, of Cleveland, Ohio, built more units last year than in any preceding year in its history. Production executives attribute a substantial part of this increase to Pittsburgh COLOR DYNAMICS.

● **Recently,** White embarked upon a six and one-half million dollar modernization and expansion program. Included was the purchase and remodelling of a building to house an up-to-date metal division. This plant now turns out more machines with less floor space than the old factory.

● **"Several years ago** we used Pittsburgh COLOR DYNAMICS in repainting our main offices," writes E. J. Sebek, Vice-President in charge of manufacturing. "So beneficial did this practical use of the *energy in color* prove to be that we decided to use this system in 'color engineering' the new plant.

● **"In place of drab,** brown walls, we now have attractive surroundings of *eye-rest* and *morale-building* colors. *Focal* colors on working parts of machines reduce eye-strain. Our workers see their jobs better and do not tire as quickly. Nor do they sustain as many lost-time accidents because controls and hazard areas are clearly indicated by *safety* colors.

● **"Volume and quality** of production have been improved. Morale has been raised by the better and cleaner working conditions. Our workers take greater pride in their surroundings so that housekeeping problems have been reduced.

● **"We have** a constant stream of visitors to this new plant. Many of these are production executives from other companies who are eager to see what we have done and how. We are always happy to recommend the use of COLOR DYNAMICS to them because of what it has accomplished."

● **Why not investigate** what Pittsburgh COLOR DYNAMICS might do for you? Try it on a few machines or in a department or two—and see the difference it makes!

FREE—Color Engineering Study of Your Plant on Request!

● **For a complete explanation** of COLOR DYNAMICS, send for our free, profusely-illustrated booklet. Better still, let us make a scientific engineering study for you—free and without obligation. There's a trained COLOR DYNAMICS expert at each of our 75 warehouses. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have a representative see you at your convenience. Or mail coupon.

SEND FOR A COPY OF THIS BOOK!

Pittsburgh Plate Glass Co., Paint Div.
Department NS-81, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your new revised and enlarged Booklet, "*Color Dynamics in Industry.*"

☐ Please have your representative call for a Color Dynamics Survey of our properties without obligation on our part.

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PITTSBURGH PAINTS

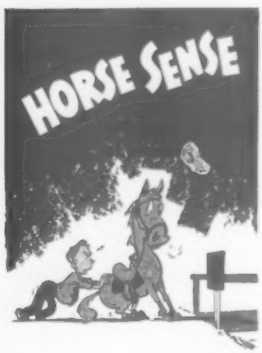
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

SAFETY POSTERS

IMPORTANT

ALL miniatures shown on these pages are of NEW posters — produced for the first time this month. Excepting the Jumbo poster (below, left) all will be available during the remainder of 1951. Those displayed on the following pages in black and white are actually printed in two colors. In addition to these new posters, you will find a great variety of subjects among the 744 posters illustrated in the 1951 Directory of Occupational Posters.



9390-C 25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters —shown in black and white on the following pages and in the 1951 Poster Directory.

SPECIAL FEATURE

Extra attention-getting value has been added to the October fire poster—No. 9369-A, see regular illustration below. The actual 8½" x 11½" poster will be printed in yellow and black ink and luminescent material called DAY-GLO red. Although the DAY-GLO has been added at considerable production cost, this poster is offered at regular prices.

JUMBO POSTER for SEPTEMBER 1951

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

9369-A 8½x11½

For additional multi-colored posters see the 72 four color posters shown in the 1951 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
(Available only in sizes indicated)

NATIONAL SAFETY COUNCIL

9354-A 8½x11½

NEWSPICTURE!
ACTUAL PHOTO OF MAN BURNED BY SPLASH OF HOT METAL—SKIN BURNS WERE SEVERE *BUT* GOGGLES SAVED HIS EYES!
PHOTOGRAPH OF SAME MAN. NOTE FULL RECOVERY.

NATIONAL SAFETY COUNCIL

9375-A 8½x11½

NATIONAL SAFETY COUNCIL

9160-A 8½x11½

NATIONAL SAFETY COUNCIL

9340-A 8½x11½

NATIONAL SAFETY COUNCIL

9285-A 8½x11½

NATIONAL SAFETY COUNCIL

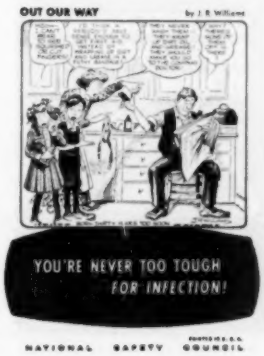
9370-B 17x23

NATIONAL SAFETY COUNCIL

9386-A 8½x11½

NATIONAL SAFETY COUNCIL

9341-B 17x23



NATIONAL SAFETY COUNCIL

9303-A 8½x11½

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Posters below are printed in two or more colors
(Available only in sizes indicated)

9347-A 8½x11½

9212-A 8½x11½

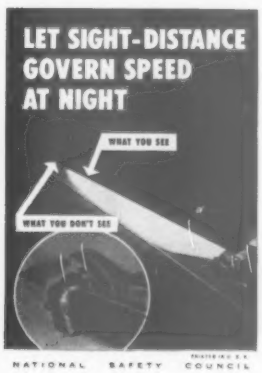
9380-A 8½x11½

BUILD-UP FOR AN ACCIDENT
UNAUTHORIZED USE OF EQUIPMENT
FAILURE TO WEAR PROTECTIVE EQUIPMENT
FAILURE TO USE GUARDS
FAILURE TO REPORT DEFECTIVE EQUIPMENT
DISREGARD OF RULES
NATIONAL SAFETY COUNCIL

9292-B 17x23

9346-B 17x23

9302-A 8½x11½



V-9328-B 17x23

V-9364-A 8½x11½

V-9365-A 8½x11½

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Accident Prevention Manual Second Edition

Printing of the second edition of the *Accident Prevention Manual for Industrial Operations* is nearing completion, and the first copies are in stock. The Membership Department of the Council is presently working on the mailing of the copies included in membership service. A copy is being sent to the contact man in each industrial company which has 100 or more employees and receives Standard Service, and to each holder of an AA-1, A-1 or B-1 Administrative Unit.

(The full story of the production of the Manual appears elsewhere in this issue of the NATIONAL SAFETY NEWS.)

Member price for a single copy of the Manual is $9.00; non-member price is double. Prices for larger quantities of the Manual and for the section reprints may be secured from the Council's Membership Department.

New Employee Booklet

A Wise Bird Follows the Rules is the title of the latest addition to the Council's series of pocket-sized booklets for industrial employees. Illustrated with cartoons and printed in red and blue, the booklet points out the reasons for safety rules and the employee's stake in following those rules. On each page, a miniature of the owl featured on the cover gives humorous, friendly emphasis to the point discussed.

Copies of the booklet can be used to brighten a safety campaign, to explain the company's point of view on safety rules to the new employee, to remind old employees of the common sense basis for the safety rules. The booklet can be handed out to workers on the job, distributed at safety meetings, or mailed to employees' homes with a letter from management.

The booklet has 16 pages and is 3 inches by 5½ inches. Space for company imprint is provided on the front cover.

Member prices: 1 to 9 copies, 12 cents each; 10 to 99, 7 cents each; 100 to 999, 6 cents each; 1000 to 4999, 4½ cents each. For prices on quantities over 5000 and for a sample copy, write the Council's Membership Department.

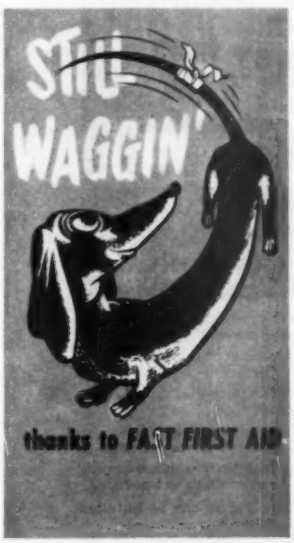
"Green Cross for Safety" Pencils

The Green Cross for Safety pencil, with ivory barrel, green tip and crown, chrome trim, and the Green Cross seal on the cap, is the Council's newest type of individual incentive award. It is both a useful working tool and a badge of recognition.

Green Cross pencils are being used by many companies as achievement awards for no disabling injuries, for reduction in frequency rates, for improvement in severity rates. The pencils provide suitable recognition for attendance at special employee safety meetings and for workers who turn in safety suggestions. They can also be used as door prizes or banquet souvenirs on special occasions and, worn by safety committeemen and executives, provide good will advertising for the safety program.

The manufacturer who supplies these pencils to the Council will print the company name, a safety slogan, or other message on the barrel without charge. In quantities over 50, the pencils may be ordered with barrels of various colors and with personalized imprinting. Orders for fewer than 50 pencils receive those with the ivory barrel and green tip and the slogan "Be Careful—The Life You Save May Be Your Own."

For a complete schedule of prices and information on imprinting, write the Council's Membership Department.



"Still Waggin'," the cover of which is reproduced above, is a pocket-sized booklet on first aid for distribution to employees. The animal cartoons provide a humorous approach to the subject.

Hospital Safety Instruction Cards

Thirteen new Safety Instruction Cards, prepared for the Hospital Safety Service for distribution to hospital employees, are now available:

H 143—Wheel Stretchers
H 144—Treatment Carts and Dressing Tables
H 145—Intravenous Solutions—Administration
H 146—Intravenous Solution Standards
H 147—Bed Rails and Crib Sides
H 148—Taking Temperatures
H 149—Razor Blades
H 150—Smoking in Bed
H 151—Rule of Three—For Medications
H 152—Toys
H 153—Feeding Child Patients
H 154—Medications—Administration
H 155—Food Service

Member prices: 1 to 9 copies, 5 cents each; 10 to 99, 2½ cents each; 100 to 999, 1-9/10 cents each; 1000 to 4999, 1-7/10 cents each. For samples and prices on larger quantities, write the Council's Membership Department.

New Driver Booklet

The YOU Factor in Accident Causes, a new booklet for professional drivers, points out faulty driving habits and attitudes which can lead to accidents. Prepared by the Motor Transportation Bu-

New!
Magliner MAGNESIUM
SAFETY TONGS
with SPECIAL SAFETY FEATURE
For Prevention of Die Damage
• LIGHT • STRONG
• COMFORTABLE
These light, strong, comfortable grip safety tongs are made of specially processed magnesium alloy. They will crush . . . without inflicting damage to dies . if accidentally caught within the die opening.
Maximum protection for costly dies. Peak production efficiency and easier handling for press and shear operators. Get the complete details. Write for your copy of Bulletin ST-501.
Magline Inc. P. O. BOX 390 PINCONNING, MICHIGAN

keep HANDS and FINGERS away from PRESS RAM
LITTELL
Air Blast Valves
Eject Automatically by Air
. . . not by Hand
SAVE TIME . . . Faster production and lower labor costs
SAVE AIR . . . Reduce air consumption 92 percent
SAVE DIES . . . No damage to dies due to clogging
SAVE HANDS . . . Keep operators' hands and fingers out of danger zone
SAVE MONEY . . . Insurance premiums are lower when accidents are reduced.
QUICKLY INSTALLED—Littell Air Blast Valves can be installed on any make or size press in only a few minutes.
F. J. Littell MACHINE CO.
AIR DIVISION
4165 RAVENSWOOD AVE., CHICAGO 13, ILL.
Write for Catalog

reau of the Council, this 24-page booklet is designed to help train drivers to recognize and control the role which they themselves play in accident causes.

The booklet is pocket-sized and printed in yellow and blue. Each page of copy is faced by a page of illustration. Sound tips are given on the habit of precision driving, the big brother attitude, smooth operation, driving according to conditions, chance-taking, control of emotions, near-misses, and pride in the job.

Member prices: 1 to 9 copies, 17 cents each; 10 to 99, 10 cents each; 100 to 999, 8 cents each; 1000 to 4999, 5-8/10 cents each. For prices on quantities over 5000 and for a sample copy, write the Council's Membership Department.

Something New In Posters

For some time NSC has been investigating methods of using luminescent inks on posters. Inks that had the necessary glow just aren't available for high speed presses.

What appears to be a happy combination of ink and luminescent material is being used for the forthcoming October fire poster. Printed in 8½ x 11½ inches, poster No. 9369-A (see illustration on p. 98) will actually be printed in yellow, black and DAY-GLO red.

Produced at a higher production cost than ordinarily practical, this poster will still be sold at regular "A" size poster prices.

Future production of similar effective posters will depend on cost and demand.

Personals

Underwriters' Laboratories Appointments

C. R. WELBORN, president of Underwriters' Laboratories, Inc., has announced a reorganization of the engineering departments. Designed to streamline operation, the reorganization also serves to more accurately delineate the division of responsibility and thus paves

"Bond purchases fill a continuing employee need . . ."

C. E. WILSON
President, General Motors Corporation

"Our Payroll Savings Plan, which was inaugurated pre-Pearl Harbor, has continued without interruption in war and peace. It is our experience that employees benefit personally as well as economically from such cultivation of the habit of thrift."

In General Motors, employees have to date purchased more than $841,000,000.00 maturity value of Bonds through the Payroll Savings Plan.

Inaugurated largely for patriotic reasons in August 1941, the plan proved so helpful in meeting an employee need that GM decided to continue it as a regular part of its employee program.

The experience of General Motors is paralleled by that of many other successful organizations. In upwards of 21,000 large companies today, more than 8,000,000 Americans are investing $150,000,000 in U. S. Savings Bonds every month.

Every Payroll Savings Plan is of direct benefit to the country, the company, and the employee. It is the one way of insuring our strength as individuals and as a free people.

Employees *want* the Payroll Savings Plan. If you do not offer your people the plan . . . or if you have not made a person-to-person canvass recently—phone, wire or write to Savings Bond Division, U. S. Treasury Department, Suite 700, Washington Building, Washington, D. C. Your State Director will contact you to explain the simple pattern of the person-to-person canvass and supply you with application blanks, posters, pay envelope enclosures and other helpful material.

Act now—to help your employees, your company and the stability of the American economy.

Recent increases in employee participation in the Payroll Savings Plan following person-to-person canvasses:

Hotpoint, Inc., Chicago, from 8.7% to 96% of 9,000 employees . . . Standard Oil of Indiana (Illinois; 26,175 employees), from 32.3% to 79.1% . . . Kelly Springfield Company (Maryland; 2,000 employees), 46.8% to 83.3% . . . A. M. Byers Co. (2,500 employees). 26% to 91% . . . Crucible Steel Company (14,500 employees) reinstatement of plan, 65%. Consolidated Western Steel Corporation (California; 7,528 employees) 9.3% to 84.8% . . . Wisconsin Electric Power Co. (3,000 employees) 44.3% to 73%.

The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, The Advertising Council and

NATIONAL SAFETY COUNCIL

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO *Cork Faced* BULLETIN BOARDS

BULLETINS

STYLE NO. 440

F.O.B. PHILADELPHIA $9.00

A quality bulletin board that may be adopted for general use . . . Manufactured of a specially fabricated cork faced material with a hardwood frame. Cork face is in natural tan color, frame satin-finish stained a slightly darker shade to harmonize . . . Size over all, 27" x 39" . . . A practical answer for office and plant use, institutions, schools, hospitals, commercial establishments and many other locations.

SPECIAL SIZES TO ORDER

Write for Bulletin No. K-81

IPCO *Safety Equipment for all Industries*

INDUSTRIAL PRODUCTS COMPANY

2850 N. FOURTH STREET · PHILADELPHIA 33, PA.

HOT WEATHER AHEAD . . .

INVESTIGATE IDU PROTECTION AGAINST

POISON IVY

and

POISON OAK

For more than a decade IDU Skin Lotion* has been giving outdoor workers—linemen, utilities workers, gardeners and foresters — the protection they need from poison ivy and poison oak.

These two spring and summertime hazards to health and efficiency will soon become troublesome. Be prepared. Don't let these irritating conditions develop—use IDU for their prevention. Order Now.

* Used for More Than 10 years by Wisconsin Public Service. Available at the following prices to public utilities: 4 oz. bottles, $6.00 a doz.; 8 oz. bottles, $10.00 a doz.; 1 pint bottles, $16.00 a doz. FOB Wausau, Wis.

Send us a penny post card for a generous free sample.

I. D. U. PRODUCTS CO. WAUSAU, WIS.

the way for further growth and expansion of activities.

Most prominent change has been the appointment of KARL S. GEIGES as Chief Electrical Engineer. Mr. Geiges, a graduate of Newark College of Engineering in 1928, joined the Laboratories' staff at New York as assistant electrical engineer. Later he was appointed associate electrical engineer and then service engineer in the Label Service Department. After serving with the War Production Board in the Conservation Division, Mr. Geiges was on active duty as lieutenant in the U.S. Navy. Upon his return to Underwriters' Laboratories in 1946, he was placed in charge of the Electrical Department of New York.

Mr. Geiges is taking up the Electrical Department duties of M. M. Brandon, vice-president, who will devote much of his time to the chairmanship of the Electrical Committee of the National Fire Protection Association.

Directing Electrical Department operations in the three Laboratories' testing stations will be D. B. ANDERSON in New York, W. R. RILLING in Chicago, and H. G. DODGE in San Francisco, with the titles of electrical engineers. H. B. SMITH, of New York, is standards engineer for the department.

H. B. WHITAKER has been appointed senior associate electrical engineer, and R. E. DUFOUR is senior associate chemical engineer, both in the Chicago Laboratories.

NSC Personnel Changes

ROY G. BENSON has been promoted to assistant manager of the Industrial Department, replacing A. M. BALTZER who assumes new duties as director of small plants. As senior engineer on the staff, Mr. Benson was assigned to the Petroleum and Textile Sections. He will retain his affiliation with the Petroleum Section.

ARTHUR S. KELLY, senior engineer, will be assigned to the Textile Section. He has served on ASA committees and has worked closely with the machine industry. A trip through the South has been scheduled for Mr. Kelly in which he will visit members of the Textile Section in connection

with program plans for the industry.

GEORGE MACDONALD has been promoted to the new position of senior consulting engineer, in charge of coordinating all engineering materials. He will work with the engineering chairmen of all sections to plan long range programs for the production of such materials. Review of all material produced to date will be made to avoid overlapping of the work of the various sections. Such a program will help in giving the Council's membership more helpful technical information.

HOWARD WARZYN, senior engineer, has been assigned to the Construction Section which has been temporarily represented on the staff by Mr. MacDonald. Mr. Warzyn brings to this assignment the experience of several years of supervisory experience in maintenance with American Airlines.

GLEN GRIFFIN, director of training, takes over the Food Section formerly represented by Mr. Baltzer.

FOREST H. HUMPHREYS has been appointed manager, property department, of the American Car and Foundry Company.

Forest H. Humphreys

Mr. Humphreys, who succeeds John H. Green, has been assistant manager, property department, since June 1950, when the safety

WANTED: SAFETY ENGINEER

Casualty Insurance Company. Midwest territory. Salary open. Please give full details of experience and personal qualifications. Address Box 420, NATIONAL SAFETY NEWS.

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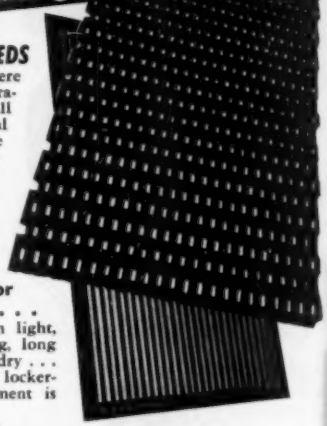
MATS

SURE-GRIP SAFETY

for All Standing or Walking Surfaces



TO MEET ALL INDUSTRIAL NEEDS

Frictioned-rubber link mats for areas where heavy duty service demands greatest durability with maximum SAFETY . . . Full half-inch thick with links woven on special rust-resisting steel wire, they can be made to your specifications to fit any rectangular safety-surfacing requirement. Their sure-gripping cushion reduces leg fatigue, helps increase efficiency of workers at machines and benches . . . Molded rubber scraper type mats made to standard sizes for entrances and standing workers.

Heavy Duty Ribbed Runners For Halls, Corridors, Locker Rooms . . .

Mel-Isle, high-ribbed rubber runner, in light, medium or heavy gauge is self-cleaning, long wearing and SAFE for walking, wet or dry . . . Perfect surfacing for halls, corridors, locker-rooms, aisles where sure-footed movement is essential at all times.

Write for catalog and prices today.

MELFLEX PRODUCTS COMPANY, Inc.

L. E. WARFORD, President

410 S. Broadway, Akron 8, Ohio — In Canada: 206 N. May St., Fort William, Ont.

Sizes 3 feet to 16 feet in height (measured from ground to platform). Standard rubber safety shoes at no extra cost.

For Safety's Sake Use

DAYTON SAFETY LADDERS

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested airplane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write today for Bulletin No. D-8

DAYTON SAFETY LADDER CO.

2339 GILBERT AVE. — CINCINNATI, OHIO

In Canada—Safety Supply Company—Toronto

Self-shaping . . . like a well used felt hat. Air-cushioned for sheer comfort. Radiation tests prove them 10% cooler.

Save money. One size fits all heads... reduces inventories. Headband assembly can be removed or replaced in six seconds.

Color choice unlimited. Vivid, permanent colors molded all the way through *stronger-than-steel* Fiberglas shock-absorbing crowns.

Make safety hat wearing popular by furnishing Hard Boiled Hats or Cape.

WRITE FOR FREE COLOR CIRCULAR

EVERYTHING BULLARD IN SAFETY HARD BOILED *T. M. Reg.

Distributors in principal cities

E. D. BULLARD COMPANY

275 EIGHTH STREET, SAN FRANCISCO, CALIFORNIA

and claims division which he headed was merged with the property department. He entered ACF's employ in 1916 as a riveter at Jeffersonville, Ind., and served successively as timekeeper, cost accountant, manager of safety, claims and employment, and assistant to the plant manager. Transferred to New York in 1932, he was named assistant general supervisor of safety and claims for all plants. During World War I he served for two years with the Army.

Mr. Humphreys has been active in country-wide safety movements for many years as both speaker and writer. He fostered the formation of the ACF Wise Owl Club, composed of workers who have had their sight saved in an accident by safety glasses, and was instrumental in the spread of Wise Owl Clubs throughout industry in general. Also, while at Jeffersonville he sponsored the formation of elementary school safety clubs, the first of their kind in the United States.

Obituary

DAVID J. PRICE

Dr. David J. Price, nationally known authority on dust explosions, died in Washington, D.C., May 28. Until his retirement in 1949, he had been chemical engineer and specialist in the causes of industrial explosions and farm fires in the Bureau of Agricultural and Industrial Chemistry, U. S. Department of Agriculture.

For many years he was the Department's consultant in work with other federal agencies, state and local organizations, firemen's associations and private industry on the control of dust explosions and fires. In May 1949, Dr. Price was awarded a Superior Service Award for his research and educational efforts in improving fire-fighting methods and preventing dust explosions.

From 1942 to 1944 Dr. Price was president of the National Fire Protection Association, and in 1947 he was made a member of President Truman's committee on fire-fighting service. He was active in the National Safety Council, the National Fire Waste Council, and other fire and safety organizations.

A native of Ashland, Pa., he worked for a number of years with mining concerns in the anthracite and bituminous coal regions. Entering government service in 1912, he was first employed at the Pittsburgh Experimental Station of the Federal Bureau of Mines.

He joined the Department of Agriculture's Bureau of Chemistry in 1914 and inaugurated the Department's research and educational program on the prevention of grain dust explosions and farm fires. He was the author or co-author of more than 300 published articles on these subjects and was a speaker at many National Safety Congresses and regional conferences.

Research in the USDA under Dr. Price's direction yielded fundamental data on the explosibility of dusts from farm products that made possible the development of

MERRILL BROTHERS

56-28 ARNOLD AVE., MASPETH, N. Y.

effective measures for preventing dust explosions. He participated in the investigation of a number of fire disasters.

A graduate of Pennsylvania State College in 1925, Dr. Price in 1927 received both an E.M. degree in mining engineering from that institution and an M.S. degree in chemical engineering from George Washington University. In 1931 he received his Ph.D. degree from American University.

G. W. PHILLIPS

G. W. PHILLIPS, for many years director of safety and welfare for the Champion Paper and Fiber Company at Canton, N. C., died June 14. For 40 years he was also editor of the company's magazine, *The Log*, continuing as editor emeritus and contributor after his retirement in 1947.

Mr. Phillips was born in Buena Vista, Va., in 1873, and had been with Champion since 1906. At the organization of the Pulp and Paper Section of the National Safety Council in 1916 he served as acting secretary and was a member of the sectional executive committee for many years. He was general chairman 1923-24.

JOHN J. WITTMER, M.D.

DR. JOHN J. WITTMER, vice-president in charge of employee relations for Consolidated Edison Company of New York, died May 19 after a heart attack at his country home in New Canaan, Conn. He was 55 years old. Death came while he was working in his garden.

Dr. Wittmer was born in Brooklyn and educated at Fordham University and Long Island College of Medicine where he received his M.D. degree in 1922. His medical studies were interrupted by service with the Army Medical Corps in World War I. From 1934 to 1942 he was a lieutenant commander in the Naval Medical Reserve Corps.

Joining the System Companies in 1924 as a physician for Brooklyn Edison, Dr. Wittmer was named supervising physician nine years later and medical director of Con Edison in 1937. The following year he became personnel director and in 1950 he was elected vice-president.

He was a frequent speaker before medical, personnel and safety groups, including several National Safety Congresses, and wrote numerous articles for industrial and medical journals.

CLARENCE C. CARLTON

Clarence Clay Carlton, prominent Michigan industrialist and Lansing civic leader, passed away at his home in East Lansing on June 9, following a lingering illness. He was 69 years of age. For many years he was vice-president and secretary of Motor Wheel Corporation. He was nationally known in the automotive world and was one of the leaders in the Automotive Safety Foundation and the Automotive and Aviation Parts Manufacturers' Association, which he founded and headed. He was a member of the board of directors and executive committee of the Lansing Safety Council and for years had headed the Council's finance committee.

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Calendar Contest Winners for June

First prize in the National Safety Council's Safety Calendar Contest goes this month to Arthur P. Grossman of Omaha, Neb. Mr. Grossman is a route salesman for Puritan Laundry. The theme of this contest was inspect for safety. Mr. Grossman's limerick was adjudged best of all those submitted. It was:

As a "Roads" scholar he'll never lead.

Second prize went to Mrs. Ethel E. Mann of Ozark, Mich., for this limerick:

Who'd refuse to go out with him? We'd.

Third prize was awarded to Genevieve Taylor of Portland, Ore., for the following limerick:

To make sure that each drive's CAREanteed.

Thirty $5 awards were issued to:

Joe Slosarcik, Socony-Vacuum Oil Co., Inc., Gary, Ind.

Evvy Trudgeon, Denver, Colo.

Mrs. Loyd Compton, Fort Pierce, Fla.

William F. Cunningham, Industrial Relations Manager United States Rubber Co., Holyoke Mass.

Mrs. Anna B. Faust, Columbia, Mo.

Mrs. Earl Boyle, Summit Station, Ohio.

Mrs. A. G. Stangland, Astoria, Ore.

Mrs. S. E. Elder, Tulsa, Okla.

Mrs. Wm. W. Chambers, Ardmore, Pa.

Mrs. Arthur Schipper, South Bend, Ind.

Mrs. H. B. Flanders, Seattle, Wash.

Mrs. R. L. Reed, Kansas City, Mo.

Martin C. Mitchell, Salesman, L. D. Caulk Co., Inc., Westbury, L. I., New York.

Mrs. J. G. Greene, Peoria, Ill.

Mrs. Barbara Constant, El Paso, Tex.

Earl G. Schwennesen, Gas Heating Department, Consumers Power Co., Kalamazoo, Mich.

S. C. Farmer, Papanui, Christchurch, New Zealand, Firestone Tire & Rubber Company of N. Z.

V. Sloper, Oakland, Calif.

Mrs. J. R. Battle, Villanova, Pa.

C. W. Schulmeyer, Frankfurt, Ind.

A. J. Schoendorf, House Organ Editor, Calif. Fruit Exchange, Sacramento, Calif.

E. Stellwagen, Jr., Mfgrs. Agent, M. A. Haven Co. & Exclusive Co., Washington, D. C.

Edwin S. Chamberlin, Salesman, J. R. Jones Co., Inc., Dayton, Ohio.

Anne E. Polk, Louisville, Ky.

Mrs. G. F. Turner, Kansas City, Mo.

Rose V. Burnham, Clintonville, N. Y.

Paul W. Blakeslee, Jr., Mid-States Steel & Wire Co., Crawfordsville, Ind.

Mrs. Richard Gibson, Ellendale, N. D.

Mrs. Imogene Wilson, Teacher, Dallas, Tex.

Edward Walter Krysiak, Alpha Cement Company, LaSalle, Ill.

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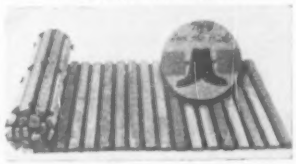

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NEW SAFETY EQUIPMENT FOR INDUSTRY

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Dust Hood

A new lightweight dust hood is announced by Willson Products, Inc., Reading, Pa. The hood will be useful to anyone working in atmospheres containing heavy concentrations of irritating dust. A unique design makes possible the use of one hood either with or without a respirator, by means of easily interchangeable frames and windows.

The hood itself is of lightweight cotton duck, and a close but comfortable fit is obtained by adjustable neck and underarm web straps. Extra-large windows of .040-inch non-flammable acetate sheeting provide ample vision for extra safety. They can be replaced without removing the frame. Frames are semi-rigid fiber and can be easily removed by means of snap fasteners for cleaning.

With the respirator window and frame assembly, the hood will accommodate respirators which provide a high degree of protection against dusts and low concentrations of common industrial gases and vapors.

Rotating Roll Clamp

A rotating roll clamp designed for attachment to fork trucks of 2,000-pound capacity is announced by Clark Equipment Co., Battle Creek, Mich. Heretofore this device proved popular for handling rolled material and other cylindrical items, has been available only for attachment to trucks of 3,000 pounds capacity and up. It is designed to handle rolls of not over 1,500 pounds on "2024" models, and of not over 950 pounds on "2015" models.

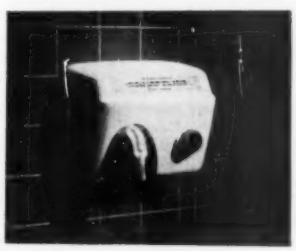
The unit can be rotated through 90 degrees, so that a roll may be picked up from horizontal position and stood on end, or vice versa. It is rotated by a cylinder with chain and sprocket linkage, and is provided with positive stops at vertical

and horizontal positions to eliminate excessive strains on the chain. Clamping action is similar in almost all respects to that employed on larger models. One clamp arm is rigidly mounted and when rotated is always in bottom position for handling horizontal rolls. The second clamp arm is hydraulically actuated and provides a maximum clamping force of 5,000 pounds. Clamp pads are hinge-mounted to fit against the roll and exert maximum pressure over the entire surface.

A manually-operated relief valve is standard. It permits adjustment of hydraulic pressures to suit rolls varying as to size and weight, and reduces possibility of damage resulting from excessive pressure. The new roll clamp is readily removable and can be used interchangeably with standard forks.

Hand Dryer

National Dryer Sales Corp., 616 West Adams St., Chicago 6, is marketing a new hand dryer which is attractive in appearance and incorporates advanced design and



approved mechanical features. The dryer heats instantly at the touch of the button and discharges more heat than has heretofore been possible. These two features in combination with greater air volume provide a faster, more thorough and more satisfactory drying method. Nozzle can be rotated a full 360° to provide sanitary face drying when required.

Action is completely automatic with the machine turning itself off after 30 seconds. An automatic circuit breaker prevents the heating element from burning out. Concealed mounting bolts prevent removal of dryer from the wall. These dryers have rust-proof castings and heavily plated parts with lifetime porcelain-enamel finish and chrome plated fittings. The dryer is guaranteed for two years and is approved by Underwriters' Laboratories.

Cover Lens

A new plastic cover lens for welding helmets and welding goggles is announced by Willson Products, Inc., Reading, Pa. The new cover lens is known as "Spatterproof" and is available in 2 x 4½ inch and 50 mm. round sizes, .040 thick. The new lens is made of a plastic that will withstand pitting for longer periods than plain glass or coated cover glass.

Radiation Meter

Pocket size, eight-ounce radioactivity meters for use by plant protection personnel and civil defense monitors are being mass produced by Tracerlab, Inc., 130 High St.,

Boston 10. Powered by two hearing aid batteries, the "radiac" indicates radioactivity in roentgens, indicates whether or not a particular area is "hot" and should be evacuated.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Life-Save Vest

Industrial Products Co., 2850 N. Fourth St., Philadelphia 33, announces a new "Life-Save" vest for bridge workers, dock workers, ship builders and others working above water where the danger of drowning

is present. Outside covering is a strong, closely woven drill cloth; filling is of kapok having a buoyancy of 30 to 35 times its own weight, and will support a heavy man in water.

Designed to permit free use of arms, it is well ventilated and practical for year-round use. Double bend flexible waistline construction assures fit and comfort when bending over or sitting down. No metal parts to corrode or rust. It is orange color for high visibility.

Glass Fire Helmet

E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif., has developed a new molded fiberglas fire helmet. In addition to offering high impact resistance, the helmet

is exceptionally light in weight. Weight has been reduced to approximately 20 ounces for the helmet complete. Permanent, non-aging colors are molded into the helmet, and while any color can be supplied, standard colors are black, white and red. Ribbed crown design adds to the protective qualities. This resin bonded Fiberglas material is impervious to moisture and most acids, has high dielectric strength, and will not support flame.

Glass is an effective insulator against heat and cold. Radiation tests reveal this construction to be 10 per cent cooler inside, which adds to wearing comfort. An air space is left all the way around the headband assembly, allowing for ventilation, or the accommodation of earlaps and cold weather liners. Patented six-point suspension of the headband assembly provides strength to absorb blows, and also permits removal and replacement of the entire assembly quickly. Adjustable headbands and "hammock" assembly permits fire departments to carry smaller helmet stocks to fit all head sizes.

Safety Lenses

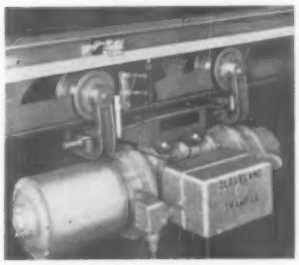
A complete line of safety lenses for replacement purposes has just been made available under the Penoptic label, by Pennsylvania Optical Co., Reading, Pa. The new product is a companion line to the recently announced Penoptic welding lenses, and is being sold direct to the industrial user.

The new safety line includes clear and absorptive lenses in flat, 1.25 and 6.00 diopter curve lenses. Each type is available in 50 mm round, 47 mm dropeye, and 44mm dropeye sizes. Every lens in this new line is guaranteed to exceed all government specifications for optical quality and resistance to impact, according to the manufacturer. The lenses are available in all standard sizes to fit all makes of goggles and spectacles.

Electrification for Cranes

The Cleveland Tramrail Division of the Cleveland Crane and Engineering Co., Wickliffe, Ohio, announces a new type of electrification for overhead cranes and tramrail systems espec ally designed to provide maximum safety. The development was planned and carried out in anticipation of a possible ruling in the near future by the National Electric Code, making it mandatory to have adequate protection of electrification on overhead materials-handling equipment.

The improvement, known as Cleveland Tramrail Saf-Powr-Bar, consists of inverted U-shaped conductor bars inside of which operate sliding current collector shoes. This electrification arrangement may be applied to all new Cleveland Tramrail systems, as well as replacements on open-bar electrification. It may also be installed



on many hand-propelled systems where motor-powered hoists, carriers, or cranes are now desirable. The Saf-Powr-Bar prevents accidental contact with an electrified conductor bar. Shocks and more serious injuries from contact with power bars are prevented because the bar is enclosed with insulating plastic covering.

Sliding current collector shoes contact three sides of the bar and operate on a pantographic principle. A diagonal spring provides upward pressure on the graphitar shoe while a torsion spring within a plastic housing causes pressure to be applied on both sides of the conductor bar. Actual tests on installations in the field have confirmed the results of research tests which indicated the life of a graphite collector shoe in a Saf-Powr-Bar to be upwards of 2,000 miles as compared with 400 miles maximum for a collector wheel assembly. The slider shoe is made of special graphite which possesses lubricating properties, minimizing wear on the bar.

Masonry Cutting Blade

Clipper Manufacturing Co., 2800 Warwick, Kansas City 8, Mo., announces a new break-resistant masonry cutting blade which is not damaged by dropping, twisting in the cut, or bending. It is manufactured in layers of glass fiber cloth impregnated with resins and silicon carbide. This material is then pressed together under hydraulic pressure and processed in kilns where the temperature is scientifically controlled to insure a resilient and tough blade.

Its most effective performance is in the softer range of materials such as limestone, sandstone, light aggregate concrete products and dry press refractories, transite, etc. For harder materials, Clipper metal-bonded diamond blades are used.

The Clipper break-resistant blade gives

NEW SAFETY EQUIPMENT FOR INDUSTRY

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unusual efficiency on small hand-power tools where it is impossible to maintain a true cutting level. This condition causes the blade to bend or twist in the cut resulting in breakage with the ordinary abrasive blade.

Self-Dumping Trailer

A new model self-dumping, one-cubic-yard-capacity "Phil-Dump" Trailer has been added to the Phillips Mine & Mill Co. line of industrial materials handling trailers. This new item, which can be pushed by hand or handled by a fork lift truck, has been designated the Model

SRF-1. The trailer features a self-dumping hopper held to prevent accidental dumping by a safety lock with a safety catch. When the lock is released the hopper dumps its load, and then returns to the loading position. The lock then automatically engages, holding the hopper in place. Without danger of tipping over, it can be dumped from a fork lift truck in the "elevated" position.

Design includes rubber tired and castered rear wheels, permitting the trailer to be pushed easily by one man. Built of heavy gauge steel with rolled edges to prevent injury to personnel or load, this trailer is suitable for hauling and unloading, scrap, castings, stampings, wire, cuttings, sand, fertilizer, powdered chemicals, etc. Further information may be had direct from Phillips Mine & Mill Supply Co., 2313 Jane St., Pittsburgh 3, Pa.

Germicidal Product

A new type germicidal product. Antiseptic Huntolene, which is used in the dust mop during daily maintenance, has been announced by Huntington Laboratories, Inc., Huntington, Ind.

This product is basically a highly refined dust-laying distillate, used for wood maintenance. It rinses out of mops and cloths in soap and water, leaving them clean and absorbent for reuse. Antiseptic Huntolene is sprayed into the mop head which is allowed to stand for 24 hours. Then the mop is ready for dustless sweeping.

"Self-Rescuer" Device

For emergencies in air contaminated by carbon monoxide, the Mine Safety Appliances Co., Pittsburgh, Pa., has developed a new "self-rescuer," a small, compact, lightweight device to protect the wearer for 30 minutes in CO concentrations found after fires or explosions in mines or other underground or enclosed areas. The apparatus has been tested and approved by the U. S. Bureau of Mines for self rescue from carbon monoxide contaminated air.

The device is simple to use and compact enough to be carried personally. Quantities of them can be stored in metal "cache assemblies" at strategic locations throughout a mine, or single units can be carried in a leather case. The self-rescuer contains, in its flexible rubber body, a hermetically sealed chemical cartridge which is replaceable after use. Low cost of the cartridge makes it economical to use for training purposes. The cartridge is filled with hopcalite and a drying agent. The hopcalite oxidizes poisonous carbon monoxide to carbon dioxide and thus protection is given the wearer so that he can reach fresh air safely.

To use the device, the wearer merely lifts a sealing arm at the back of the unit to pry the lid up revealing a plunger. He depresses the plunger and inserts the flexible rubber mouthpiece in his mouth. A nose clip is provided to prohibit nasal breathing. An adjustable neckband supports the unit in place.

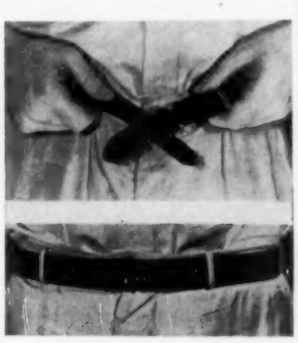
Fire Extinguisher

A 4-pound dry chemical fire extinguisher with a rubber hose has been introduced by Ansul Chemical Co., Marinette, Wis. The extinguisher offers these advantages —ease of operation; flexibility in fighting overhead and ground-level fires; maximum extinguishing effectiveness for inexperienced operators. Discharge time has been increased on this model, giving untrained personnel more time to extinguish the fire. Operating range of the 4-B Extinguisher is 12 to 15 feet. It has received a B2, C2 rating from Underwriters' Laboratories. Dry chemical is ejected from the extinguisher through a self-closing nozzle which produces the fan-shaped stream pattern characteristic of Ansul hand extinguishers. (The extinguisher is pressurized by a 1½ ounce carbon dioxide cylinder in the dry chemical chamber.) Addition of the self-closing nozzle makes the new unit weather-tight.

When fully charged the unit weighs 10½ pounds. Bracket and shipping container increase the weight to 13½ pounds. The extinguisher is 19 inches high, 5¾ inches wide and 5½ inches deep. Hose assembly is 15¼ inches. Each unit is subjected to 600 psi. hydrostatic test.

Dress Belt

Bri-Son Belt Co., 608 S. Hill St., Los Angeles 14, announces a no-metal belt which closes without a buckle. The closure, consisting of a group of notches and a slot that is guaranteed for strength, affords the wearer against sparking; electrical hazards; or machine catching of loose ends. The total absence of metal eliminates scratching or corrosion damage. Made of one piece top grain cowhide, tanned especially for this purpose, the belt comes in black, brown or white. Several oil companies have adopted the belt for use by station attendants as it avoids the possibility of scratching car finishes.



NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Clamp for Fork Trucks

The Philadelphia Division, Yale & Towne Manufacturing Co., 11000 Roosevelt Blvd., Philadelphia, has developed a new hydraulically operated clamp for industrial fork trucks, which enables bales, bins, drums, and miscellaneous containers to be picked up and transported on the centerline of the truck.

When used with a rotator, the clamp does not creep off center. Loss of pressure grip in arms is minimized. A variable clamping pressure permits handling of any type load, such as fragile cartons, heavy containers, bales and boxes. The self-centering arms have an inside opening range from 17 inches minimum to 60 inches maximum. The clamp will handle loads up to 6,000 pounds, and can be installed on gasoline or electric trucks.

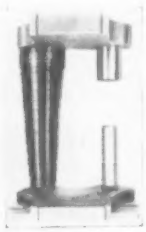
Mechanical Foam

National Foam System, Inc., West Chester, Pa., recently introduced their new product, Aer-O-Foam "99", a liquid type mechanical foam for use on fires involving polar solvents or petroleum products. In fire-fighting demonstrations, this product was shown to be easily generated in a mechanical system, flowing freely to provide a smothering, close-knit blanket of fire-killing foam. According to the manufacturer, extensive tests have shown that on fires involving polar solvents, including methyl, ethyl, isopropyl alcohols, esters, ketones, and ethers as well as petroleum products, the new liquid type mechanical foam does not readily break down or disintegrate. The foam moves out quickly onto a blazing surface in a mass of tight-knit, air-filled bubbles. This thick, chemically-resistant blanket of foam spreads across the flaming fluid, smothering the flames. If the foam mass is broken, it quickly reseals. It also adheres to and insulates all types of surfaces.

The foam is non-corrosive, and is a mobile, free-flowing liquid even at temperatures as low as 10° F. If frozen, it maintains its effectiveness on thawing out.

Guide Pin Covers

Elasticone guide pin covers, designed to eliminate the pinch point between pin and bushing on punch press die sets, have been introduced by Central Safety Equipment Co., 2200 E. Huntington St., Philadelphia 25. The covers are helically wound flat steel springs, produced of special alloy and temper. Requiring no tools for installation, the covers are simply inserted over the pin and bushing of the set (between the upper and lower shoes) and are held in place by their own spring tension. They enclose the pin and bushing area and eliminate the pinch point.



Offering automatic protection for operators, the covers also protect the pins and bushings from nicks, scratches, dust, etc. These covers are stocked in a variety of sizes to accommodate most die sets.

Padlock

A padlock designed for the protection of boiler-cleaners, electrical repairmen and others whose safety requires that they lock out valves or switches while performing out-of-sight jobs, is offered by Corbin Cabinet Lock Division, The American Hardware Corp., New Britain, Conn.

Special features of the Corbin Personal-Safety Padlocks (Model P65R) include 2¾ inch hardened-steel shackles and attached metal tags for employee's names or numbers. The padlocks, as regularly furnished, have disc tumbler mechanisms with 200 possible key changes. When desired they can be keyed alike or masterkeyed.

News Items

D. D. Cramer has been elected president of the Aluminum Ladder Co., Worthington, Pa., manufacturers of aluminum fire ladders, industrial ladders, marine ladders, and gangways. Formerly vice president of the company, Mr. Cramer succeeds S. H. Carbis, founder and president of the company, who died in April of this year. He joined the company in 1940.

H. J. Mudd, general manager of the company, has been elected vice president. He joined the company in 1940 as shop foreman.

* * *

Bamford E. Rogers has recently been appointed sales representative for the northeastern part of the United States by Mathias Klein and Sons, Chicago. This company manufactures tools and equipment for linemen and electricians. Mr. Rogers has had wide experience in this field, serving with such organizations as Federal Telephone and Radio Corp., Kenneth A. McIntyre Associates and Western Union Telegraph Co. He is a graduate of Harvard College and Harvard Graduate School of Business Administration. During the war he served in the Navy as assistant communications officer and after duty overseas, he was ordered to duty with the Chief of Naval Operations, Washington, D. C. He was released to inactive duty with the rank of lieut. commander. Mr. Rogers will supervise sales in the territory, making his headquarters at Paterson, N. J.

A New York Times correspondent abroad reported this dialogue —reputedly direct from Moscow:

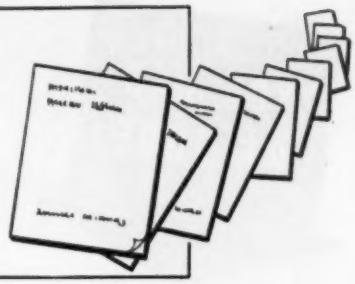
"What," asked the first Russian, "was the nationality of Adam and Eve?"

"There's no possible doubt, they were Soviet citizens," replied the second Russian. "They had nothing to wear, nothing to eat but an apple and lived in paradise."

Many men boast of being self-made. Others have been working on more important things.

TRADE PUBLICATIONS
in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. **"Skin Toughening"**: Circular describes method of Athlete's Foot prevention through use of Onox soft sponge rubber mat for toughening the skin. Onox, Inc.

2. **Fifth Wheel:** Literature on the new A.S.F. extra heavy duty side oscillating fifth wheel for strip mines, quarries and all on or off highway uses. Designed for big trailers, heavy loads and rough terrain. American Steel Foundries.

3. **"Studies in Centralized Lubrication"**: Illustrated booklet featuring centralized lubrication for all types of machine bearings, plus installation data. Farval Corp.

4. **"Torches & Furnaces"**: Folder describes modern tools for soldering and melting metals. Featured also are Insto-Gas cylinders, torches, furnaces and accessories. Insto-Gas Corp.

5. **"Safety Saves"**: A safety rulebook with cartoon illustrations depicting the do's and don'ts for safe operation of industrial power trucks. Various truck models, attachments and devices are also featured. Clark Equipment Co.

6. **Gauge Glass Protector:** A circular on the Kleervu safety gauge glass protector for pressure tanks, chemical vessels, and process equipment. Illustrates the various types of protectors with detailed information on their operation. Wright Austin Co.

7. **Tower Ladder Safety Device:** Folder describing use of tower ladder safety device for workers who climb. Especially adapted for use on radio and television towers, derricks, highline towers or wherever men work at great height. Device consists of belt and locking mechanism. Safety Tower Ladder Co.

8. **"Industrial Ventilation"**: A new periodical devoted to the latest developments in industrial dust and fume control. Illustrated case histories on the application of Dustube cloth-tube filters to dust control problems in various industries are shown. Of special interest are the informative technical discussions. American Wheelabrator and Equipment Corp.

9. **Safety Cans:** A folder describing various stainless steel Justrite Safety Cans for handling and storing flammable liquids and waste. Approved and labeled by Underwriters' Laboratories. Justrite Mfg. Co.

10. **"Rubberlock"**: Folder on interlocking rubber floor mats and runners for reducing fatigue and increasing safety wherever people stand or walk. R. L. Mitchell Rubber Co.

11. **"Faceshields"**: Bulletin featuring various models of faceshields with either Chempruf or Chipruf visors for splash or impact hazards. Detailed information given on best type for specific work involved. Mine Safety Appliances Co.

12. **"Oxygen Therapy Apparatus"**: Is the subject of this new illustrated catalog. Included in the catalog are descriptive pages on oxygen tents, oxygen analyzers, emergency oxygen units, post-operative treatment apparatus, resuscitators, etc. Ohio Chemical & Surgical Equip. Co.

13. **"Stonhard Stonpach"**: Folder describing the use of Stonpach for patching or completely resurfacing all types of floors subject to severe conditions in industry. Stonhard Co.

14. **"Meco Products"**: Catalog covers the entire line of Meco handling equipment. Hand trucks, platform trucks, barrel trucks, skids, dollies and a line of rubber-tired and semi-steel wheels. Lists technical specifications and recommendations. Modern Equipment Co., Inc.

15. **Accident Prevention Signs:** Catalog No. 9, 64 pages, in full color, shows hundreds of different stock-worded signs covering every conceivable hazard. Stonehouse Signs, Inc.

16. **Safety Shoes:** Catalog covering safety shoes for every individual job. Features use of new Dacron thread for stitching. Record Industrial Co.

17. **"Industrial and Marine Hardware"**: Catalog data book tells you how to select the right wire rope and chain fitting for every job. Complete specifications and helpful tables. The Thomas Laughlin Co.

18. **Bradley Group Washfountains:** Four-color catalog No. 4701 illustrates complete line of employee washing facilities. Layouts are shown of large and small plant installations with explanation for piping connections. Bradley Washfountain Co.

NATIONAL SAFETY NEWS AUGUST, 1951

425 N. MICHIGAN AVE.
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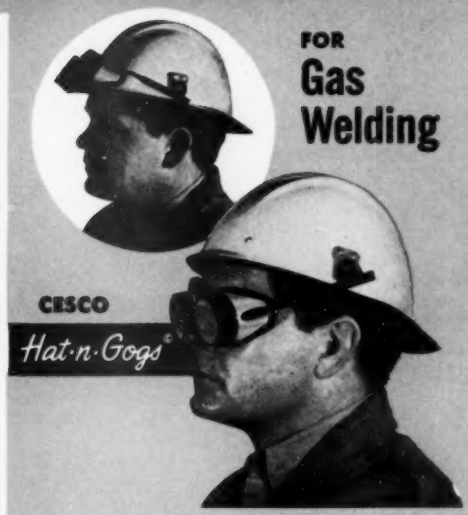

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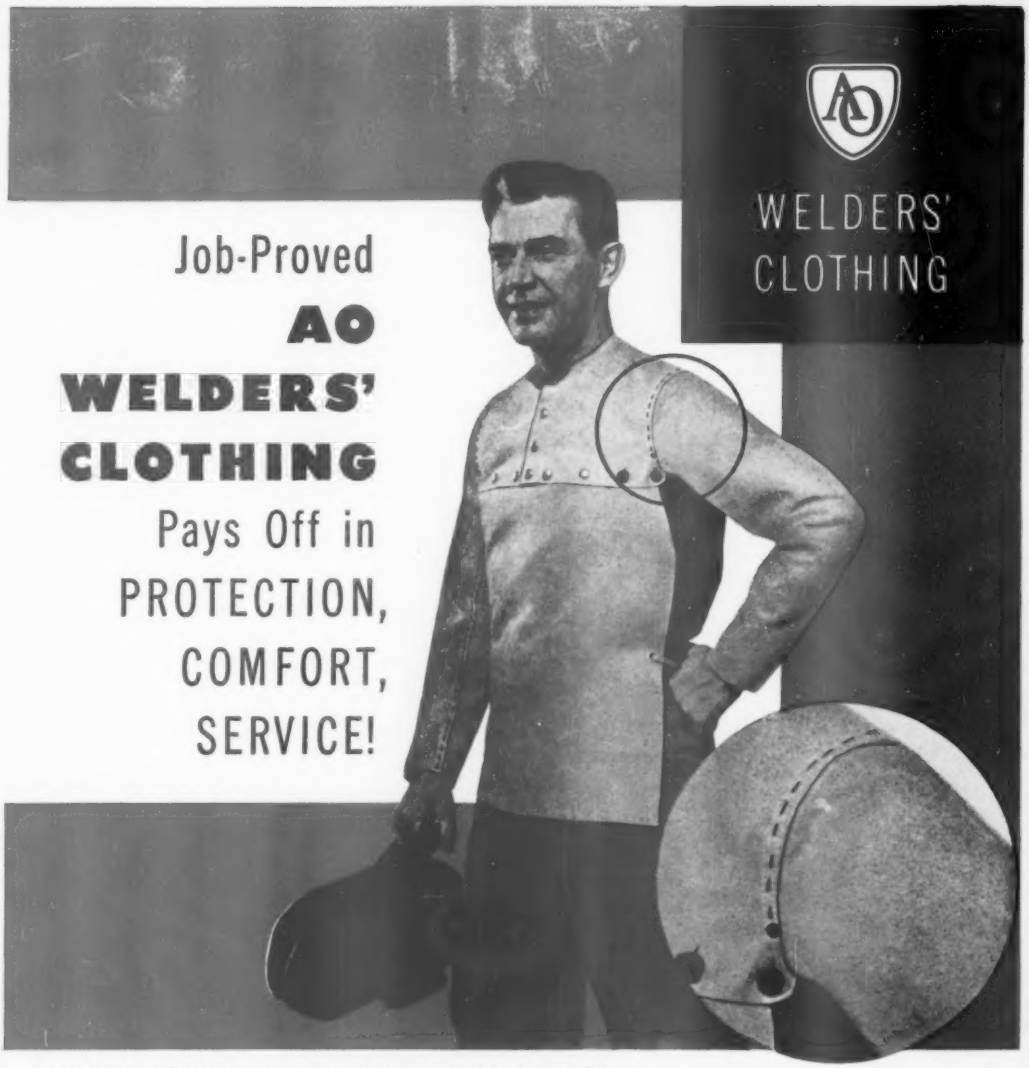

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